

SERVICE MANUAL

AEP Model

West Germany Model



SPECIFICATIONS

System

Video recording system

Rotary two-head helical scanning

Helical scanning FM system

Audio recording system

Normal recording

Standard: Rotary head FM system

(monaural)

PCM: PCM system (2 channels)

Digital multi audio recording

PCM system (2 channels, 6 tracks)

Colour system

EV-S800: CCIR system B,G and H, PAL colour

EV-S850PS: DDR SECAM to PAL colour, convertible

Usable cassettes

Tape speed

8 mm video format casette

SP: Approx. 20.051 mm/sec.

LP: Approx. 10.058 mm/sec. Recording or playback time

SP: 1 hr. 30 min.

LP: 3 hr.

(P5-90)

Fast forward time

Approx. 3 min.

PCM, Digital multi audio system

Sampling frequency Audio frequency 31.25 kHz 20 Hz-15 kHz

Dynamic range

More than 90 dB

Wow and flutter Less than 0.005 % RMS

Tuner section

Channel coverage

VHF E2-S20

UHF E21-E69

Programming system

30 programme-memories

RF output signal UHF ch

UHF channels E30 to E39 (variable),

75 ohms, unbalanced

Aerial input

75-ohm, asymmetrical serial socket

-Continued on next page-







Inputs and outputs

Video input

VIDEO IN phono jack

1 Vp-p, 75 ohms, unbalanced, sync

negative

Video outputs

EURO-AV

21-pin (pin 19)

1 Vp-p, 75 ohms, unbalanced, sync

negative

VIDEO OUT Phono jack

1 Vp-p, 75 ohms, unbalanced, sync

negative

Audio inputs

Phono jack AUDIO IN

47 kilohms, -10 dBs (0 dBs =

0.775 V rms)

Audio outputs

EURO-AV

21-pin (pins 1 and 3)

Output impedance less than 1 kilohms -6 dBs with 10 kilohms

load, unbalanced

AUDIO OUT Phono jack

> Output impedance less than 1 kilohms -10 dBs with 47 kilohms

load, unbalanced

CONTROL L CONTROL S IN CONTROL S OUT 5-pin DIN Minijack Minijack

Microphones inputs

Minijack -60 dBs, for low-

impedance microphone

HEADPHONES jack

Stereo phone jack -20 dBs, 8 ohms

Timer

Clock Time indication Timer setting

Crystal lock 24-hour cycle

Only for recording

6 events (3 weeks max. adjustable for any day or for all 7 days of the

week)

General

Power requirements Power consumption 220 V AC, 50/60 Hz EV-S800: 30 W

EV-S850PS: 34 W

Storage temperature

Operating temperature 5 °C to 40 °C (41 °F to 104 °F) -20 °C to +60 °C (-4 °F to +140

Dimensions

Approx. 430 × 89 × 328 mm

incl. projecting parts and controls

Weight

Approx. 7.3 kg (EV-S850PS) 7.0kg

(EV-S800)

Accessories supplied

75-ohm coaxial cable for TV

connection (1)

Connecting cord RK-74H (1)

Screwdriver (1)

Remote Commander RMT-425 (1) Sony battery SUM-3 (NS) (3)

Feet (5)

Design and specifications subject to change without

notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

- 1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
- 2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
- 3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- 4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
- 5. Check the B+ voltage to see it is at the values specified.

SAFETY RELATED COMPONENT WARNING!

COMPONENTS IDENTIFIED BY SHADING AND MARK N ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PRO-CEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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SECTION 1 GENERAL

1-1. PRECAUTIONS

On safety

- Before operating, check that the operating power voltage and frequency of the unit are identical with those of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the mains outlet if it is not to be used for an extended period of time. To disconnect the lead, pull it out by the plug. Never pull the lead itself.
- The unit is not disconnected from the mains (ac power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object (over 13 kg or 28 lbs 10 oz) on the unit.
 - Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.

Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

On repacking

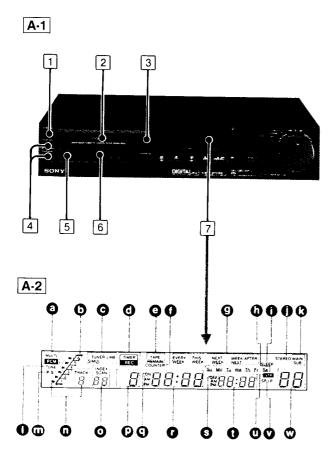
Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

On cassette care

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

If you have any questions about this unit, contact your Sony dealer.

1-2. LOCATION AND FUNCTION OF CONTROLS



A-1

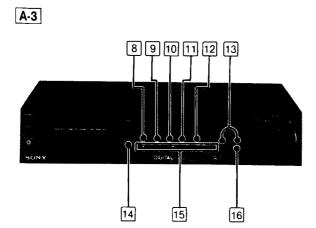
- 1 ON/STANDBY switch and lamp
- 2 Cassette holder (Page 17)
- 3 OPEN/CLOSE button (Page 17)
 Press to slide out the cassette holder. Press again to slide it in.
- 4 HEADPHONES jack (stereo mini type) and PHONE LEVEL control

Connect stereo headphones (with stereo mini jack) here. Adjust the volume with the PHONE LEVEL control.

- **5 REMOTE SENSOR**
- 6 PEAK PROGRAM METER (Page 26)
 Shows the peak input levels of the right and left channels during recording and recorded levels during playback.
- 7 Display window

A-2

- MULTI PCM or PCM indicator
- Digital multi audio tracks indicator
- G Input signal indicator
- **1** TIMER REC indicator
- TAPE REMAIN indicator
- **●** COUNTER indicator
- Week indicator
- Day of the week indicator
- SLEEP indicator
- STEREO indicator
- Bilingual indicator
- TUNE (tuning) indicator
- P (Parallel) or S (Series) digital multi audio timer recording indicator
- O Digital multi audio track number and indicator
- INDEX indicators
- Timer programme position
- Turn-on time setting indicator
- Turn-on time of a timer recording/Tape counter/Tape remain indicator
- S Turn-off time setting indicator
- Turn-off time of a timer recording/clock display
- VTR indicator
- Recording speed indicator
- O Programme number



8 COUNTER/REMAIN button (Page 24) Each time the button is pressed, the COUNTER and the

Each time the button is pressed, the COUNTER and the TAPE REMAIN indicators are displayed alternately.

9 COUNTER RESET button (Page 24)

Press to reset the tape counter to "0000".

10 GO TO ZERO button (Page 25)

In stop mode, press to advance or rewind the tape approximately to the counter "0000".

11 INDEX button (Page 30)

Used for the index scan or index search operation.

12 ANT TV/VTR button

Press to view the programme selected on the recorder. The VTR indicator appears in the display window (VTR mode).

To view a TV programme while recording another, press this button again.

The VTR indicator disappears. (TV mode)

13 PROGRAM/TRACK/INDEX buttons

Press to: -change the programme

- change the track for digital multi audio recording/playback
- -change the index number

14 SYNCHRO EDIT lamp (Pages 40-43)

Lights up when SYNCHRO EDIT inside the front panel is pressed.

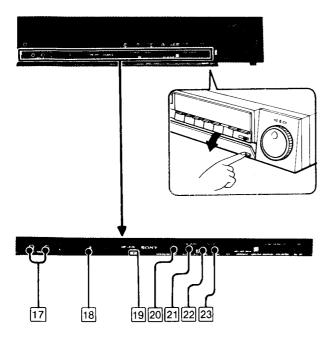
15 Tape transport buttons and indicators

- ■■ REW (rewind)
- ► PLAY (playback)
- ▶► FF (fast forward)
- STOP (stop)
- PAUSE (pause)/ ► STILL (still)

x2 (double speed playback)

16 REC (recording) switch

Slide to the right to start recording.



Inside the front panel

A-4

17 MIC (microphone) jacks (L, R) (mini type) (Page 44)
To record from these jacks, display LINE by pressing INPUT SELECT.

Connection of the microphone and the track to be recorded

Track Micro-	PCM	1 track	Standard	
phone jack	L channel	R channel	track	
L	Microphone sound	Microphone sound	Microphone sound	
R		Microphone sound	Microphone sound	
1) Micro- phone L and R sound of the L jack		2) Micro- phone sound of the R jack	1) and 2)	

18 REC LEVEL controls (Page 26)

Slide to adjust the level of the PCM audio recording.

19 SYNCHRO EDIT button (Page 38)

Press to start the playback on this unit and the recording of the connected VTR (or vice versa; recording on this unit and playback on the other VTR). When pressed, SYNCHRO EDIT lamp lights up.

20 EDIT button and lamp

Normally keep the lamp off.

When editing a tape onto another recorder (or vice versa), press the button so that the lamp lights up.

21 PCM MODE selector (Page 25)

Select the method of PCM audio recording.

Set to: **NORMAL** for normal recording on the PCM track.

DIGITAL MULTI P (parallel) for timer recording from the beginning of each track.

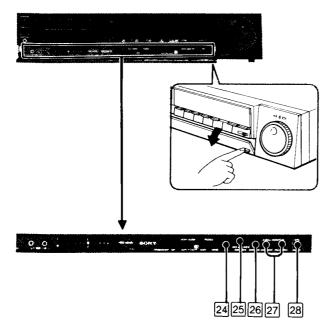
DIGITAL MULTI S (series) for continuous timer recording in one of six tracks.

22 INDEX MARK button (Page 29)

Press to mark an index signal at the desired point during recording or playback.

23 INDEX ERASE button (Page 32)

To erase a pre-recorded index signal, locate the index signal and press this button.



A-5

PFS (Picture Fine Select) button and lamp
Normally, keep the lamp off.

If the playback picture of a tape recorded on other VTRs
(which do not use the four-video heads system) is

25 SHARPNESS control

Use to adjust the sharpness of the picture if necessary. Normally set the control at the center detent position.

distorted or has streaks, press so that the lamp lights up.

26 AUDIO DUB button (Page 44)

Press to start recording on the PCM track of any recorded video tape.

Set PCM MODE [21] to NORM.

27 AUDIO MONITOR selectors (Page 21)

During playback or recording, set to the appropriate position to monitor the desired sound.

MAIN/SUB/M. S selector

When monitoring bilingual programmes or playing back a bilingual tape, press to display:

MAIN: to listen to the main language SUB: to listen to the sub language

MAIN. SUB: to listen to the main language from the left speaker and the sub language from the right speaker.

A stereo tape with a pilot signal (the STEREO indicator appears) is played back in the stereo mode regardless of the position of this selector.

PCM/MIX/STD selector

PCM: to play back the sound on the PCM track.

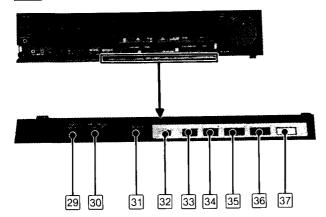
When nothing is recorded on the PCM track, the sound recorded on the standard track is played back regardless of the position of this selector.

MIX: to play back the sound on the PCM and standard tracks simultaneously.

STD: to play back the sound on the standard track.

28 VPS (Video Programme System) switch (EV-S850PS only) (Page 36)

Set to ON to activate the VPS in the timer recording.



On the front panel

A-6

29 INPUT SELECT button

Press to display the desired input signal indication in the window.

TUNER: to record TV programmes

SIMUL: to record TV programmes and signals from the AUDIO IN jacks.

LINE: to record audio/video signals from the AUDIO IN/ VIDEO IN jacks on the rear panel or to dub only audio signals from AUDIO IN or MIC jacks.

30 REC MODE selector

This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode.

The playback speed is automatically set regardless of the setting of this selector.

31 SLEEP button (Page 37)

Press to preset the turn-off time of this VTR. Playback or recording can be stopped with this timer.

32 CLOCK SET button (Page 16) Press as the first step to set the internal clock.

[33] CHECK button (Page 34) Press to check the contents of the timer presettings.

34 CLEAR button (Page 34) Press to cancel a timer setting.

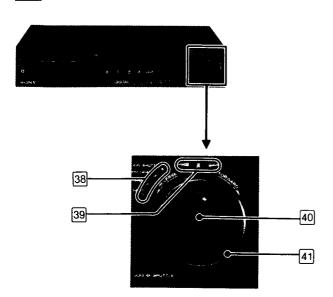
TIMER SET button (Pages 33,34) Press to start the setting or resetting of timer programmes.

36 NEXT button (Page 33) Press to advance to the next item to be set when setting the timer or the clock.

37 TIMER REC ON/OFF button (Page 33)

Press after programming VTR for timer recordings so that the timer activates. To deactivate the timer, press again.





38 JOG dial function indicators (Page 23)

Light up to indicate for what purpose the JOG dial is being turned.

JOG/SHUTTLE: when the tape is being played back at the desired speed.

PROGRAM: When the TV programme or digital multi audio track is being selected.

TIMER: When the timer or clock is being set. **INDEX:** When the index operation is being made.

39 Playback indicators (Page 23)

Indicate the forward or reverse movement or the pause mode of the tape during playback.

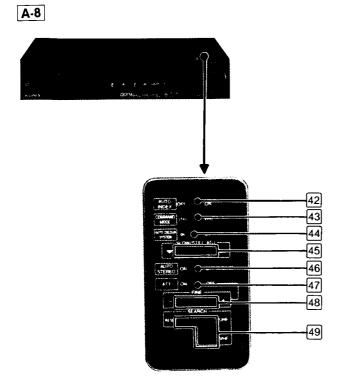
40 JOG dial (Page 23)

Turn to select programmes.

When this is turned during the playback pause mode, the picture will be played back at a speed according to the speed you are turning the dial. (From frame-by-frame to normal speed.) This dial is also used for setting the clock, presetting timer recordings, selecting any of the 6 digital multi audio tracks and for setting INDEX numbers.

41 SHUTTLE ring (Page 23)

When this ring is turned and held during the playback pause mode, you can play back the tape at various speeds: 1/5 normal speed, normal speed or double speed. The more it is turned, the faster the playback will be and when fully turned, the unit enters the "Picture search" mode in the right or in the reverse direction.



Upper compartment

42 AUTO INDEX switch (Page 29)

Normally set to OFF. To activate automatic marking of index signals during digital multi audio recording, set to ON.

43 COMMAND MODE selector (Pages 39,356)

To remotely control this unit with the supplied Remote Commander, set this selector to the same position as that on the Remote Commander.

When editing tapes, switch to the appropriate position accroding to the connection you have made.

AUTO COLOUR SYSTEM switch (EV-S850PS only)

Normally set to AUTO. According to the TV programme, colour system will be switched automatically to PAL or DDR SECAM.

If the signal is too weak or the picture is distorted, set the switch to PAL. DDR SECAM programmes will be displayed in black and white.

45 SLOW/STILL ADJ (adjust) buttons (Page 22) Adjust the still or slow-motion picture if necessary.

46 AUTO STEREO switch

Normally set to ON. During a stereo broadcast, the mode is automatically set to stereo. If there is too much interference, set the switch to OFF in which case all the TV programmes will be received in monaural.

47 AFT switch

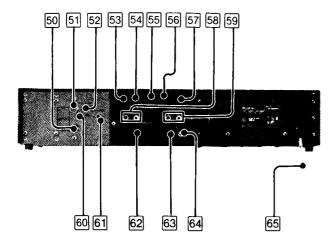
Normally set to ON. The automatic fine tuning circuit locks in and maintains a sharp picture.

48 FINE buttons (Page 16)

When the AFT switch is set to OFF, press to fine tune the station.

49 SEARCH buttons (Page 15)

Press RESET to clear the programmed station. Press UHF or VHF to tune in a station of higher frequency.



Rear

50 AERIAL OUT socket

Connect the aerial input of the TV receiver.

51 AERIAL IN socket

Connect the aerial cable.

52 TEST SIGNAL switch (Page 15)

Set to ON to obtain a test pattern.

53 CONTROL S IN jack (mini type) (Page 42)

Connect to the CONTROL S output jack of other Sony products.

54 CONTROL S OUT jack (mini type)

Connect to the CONTROL S input jack of other Sony products.

55 DIGITAL MULTI PLAY selector

Normally set to AUTO.

The playback mode will be automatically set to the digital multi audio mode. If no sound is heard when playing back a tape recorded on another VTR, set to MULTI.

56 MASTER/SLAVE selector (Page 39)

When editing a tape using the CONTROL L connector, set to either position:

MASTER: to control other equipment connected by the CONTROL L connector.

SLAVE: to be controlled by other equipment (such as RM-E100V editing controller) having control L connector.

57 CONTROL L (5-pin) connector (Pages 40,41)

Connect to the CONTROL L or REMOTE connector of other Sony products.

58 AUDIO IN (L,R) (input) jacks (phono type)

59 AUDIO OUT (L,R) (output) jacks (phono type)

60 LOCAL/DX switch

Normally set to DX. If the TV signal is very strong, set the switch to LOCAL.

61 RF CHANNEL screw (Page 15)

If there is interference on the factory-preset channel for RF output and the output signal from this unitcannot be displayed clearly on the TV screen, adjust the screw with the supplied screwdriver.

62 EURO-AV connector (21-pin)

Connect to the 21-pin connector of a VTR or aTV/ monitor, or to the audio/video input and/or outjut of these units with an appropriate connecting calle.

63 VIDEO IN (input) jack (phono type)

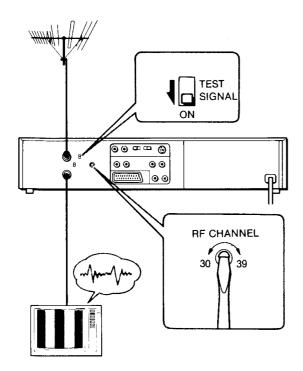
64 VIDEO OUT (output) jack (phono type)

65 AC power cord (mains lead)

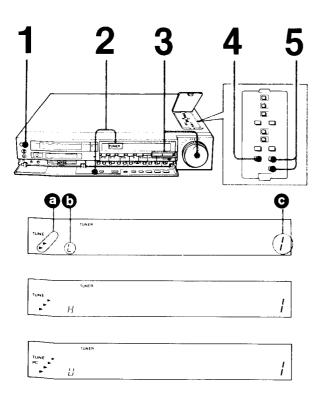
Connect to an ac (mains) outlet.

1-3. ADJUSTMENTS

B-1



B-2



ADJUSTING THE TV B-1

One of the television programme positions must be adjusted to receive the signal from the recorder. Note that the adjustment is not necessary, however, when the VTR is connected to the AUDIO/VIDEO inputs on the TV/monitor.

- 1 After making the connections, press ON/STANDBY.
- 2 Make sure that the recorder is in the stop mode and the TV is in TV mode.
- 3 Set TEST SIGNAL at the rear of the recorder to ON. The test signal is transmitted on a channel between UHF channels 30 and 39.
- 4 Turn on the TV and select a programme position which is not being used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a continuous tone. This is the recorder's test signal.

If the test picture is free of disturbance, the TV adjustment is complete. Set TEST SIGNAL to OFF.

If the test picture is not free of disturbance,

- 1 Reset TEST SIGNAL to OFF.
- 2 Adjust the channel of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound heard.
- 3 Set TEST SIGNAL to ON again.
- 4 Slowly turn RF CHANNEL on the rear of the recorder with the supplied screwdriver, until you see an undistorted test pattern on the TV screen.
- 5 Now the TV adjustment is complete. Reset TEST SIGNAL to OFF.

If you are not sure how to adjust your TV refer to the TV's instruction manual or consult your dealer.

PROGRAMMING TV STATIONS B-2

Up to 30 programmes receivable in your area can be preset on this unit.

Once preset, you can select TV programmes by turning the JOG dial or pressing the \pm /- buttons.

- 1 Turn on the unit.
- 2 Display "TUNER" by pressing INPUT SELECT.
- 3 Turn the JOG dial or press PROGRAM/TRACK/INDEX + or to select the programme position (0 to 30) on which the desired TV programme should be tuned in.
- **4** Press RESET in the upper compartment to clear the factory preset programmes.
- 5 Press UHF or VHF to search stations.

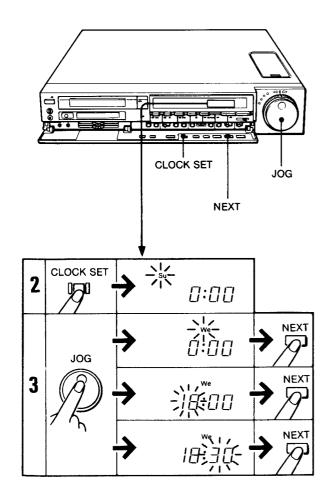
 The tuning indicators in the window show the approximate location of the current channel.

 (b): Band indicator)

Each time a station is received, the search stops. Press UHF or VHF again until the desired station is tuned in.

Repeat steps 3 to 5 for all the desired stations.

B-3



To cancel an unused programme

- 1 Select the programme to be cancelled with + or -PROGRAM/TRACK/INDEX.
- 2 Press RESET.

The cancelled programme will be skipped when + or - PROGRAM/TRACK/INDEX is pressed.

When the corresponding programme number button on the Commander is pressed, the sound of the cancelled programme will be cut out and no picture will be displayed.

To fine tune a station

If the picture of a particular station is not acceptable, set AFT in the upper compartment to OFF and keep + or - FINE pressed until the picture becomes clear. To view this particular station, set AFT to OFF.

SETTING THE CLOCK B-3

- 1 When you connect the unit to a mains outlet, the clock shows "Su 0:00".
- 2 Press CLOCK SET.

This turns the unit on.

- 3 Set day, hour and minute in sequence. First adjust the blinking item by turning the JOG dial, and then press NEXT.
 - (ex. To set for Wednesday evening at 6:30)
 For accurate setting, after adjusting the minute digit, press NEXT at the same time as an announced time signal.
 - The clock will now start and the dots of the colon will alternately blink every 30 seconds.
- 4 Press ON/STANDBY to turn off the unit.

JOG dial

Turn clockwise to advance the digits, and anticlockwise to reverse them.

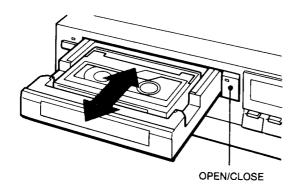
To readjust the previously set item during clock setting Press CLOCK SET again for a few seconds. Press NEXT until the item to be changed blinks and reset it. Then, terminate the setting by pressing NEXT enough times until the dots of the colon blinks.

If a power interruption occurs,

"Su 0:00" will lights up in the window.

1-4. ABOUT CASSETTES

C-1



C-2



INSERTION C-1

- Press OPEN/CLOSE to open the cassette holder.
 Power will be supplied automatically with this step.
- 2 Place the cassette with the window side up.
- 3 Press OPEN/CLOSE to close the cassette holder.

EJECTION

- 1 Press OPEN/CLOSE.
- 2 Remove the cassette and press OPEN/CLOSE.

Notes

- Always insert a cassette in the correct direction.
- The lamp inside the holder blinks while the tape is being loaded.
 - Wait until the blinking stops before proceeding.
- The cassette holder can be closed by pressing itself manually.
 - Never press it forcibly or the cassete may be ejected.
- Once the cassette is placed, you can close the holder by pressing ▶, ◄◄, ▶▶ or ♠ (REC).

TO PREVENT ACCIDENTAL ERASURE C-2

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To protect a recording, slide the tab out to cover the opening.

When the tab is out, a recording cannot be made. To rerecord on a cassette, slide the tab in.

RECORDING TIME, PLAYBACK TIME

The LP mode is twice as long as the SP mode. For better picture and sound, recording in the SP mode is recommended.

During playback, the mode in which the tape was recorded is selected automatically.

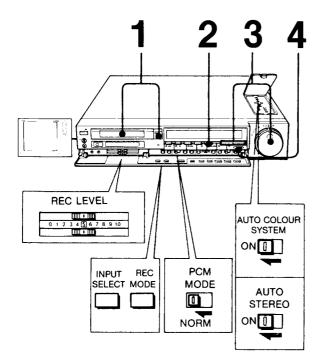
Cassette used	SP mode	LP mode
P5-30	30 min.	1 hr.
P5-60	60 min.	2 hr.
P5-90	90 min.	3 hr.

Note

Never insert anything in the small holes on the rear of the cassette.

1-5. TV PROGRAMME RECORDING

D-1



Make sure that you have finished all the connections and adjustments on pages 15 through 17.

OPERATION D-1

Before recording

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- · Check the position of the selectors:

Press	to display TUNER SP or LP		
INPUT SELECT			
REC MODE			
Set	to		
PCM MODE	NORM		
AUTO STEREO	ON		
AUTO COLOUR SYSTEM (EV-S850PS only)	ON		

- Set REC LEVEL to "5".
- 1 Insert a cassette.
- 2 Press ANT TV/VTR so that the "VTR" indicator is displayed.
- 3 Select the programme to be recorded with JOG or +/-PROGRAM/TRACK/INDEX.
- 4 Slide REC to the right.

To stop recording

Press ■ STOP.

To stop recording for a moment

Press II/A PAUSE/STILL. The TV programme can still be seen on the TV, but the picture is not recorded.

To resume recording, press II/A PAUSE/STILL again.

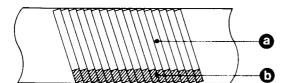
To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and recording will stop. Smooth recordings can be made by using II/A PAUSE/STILL. See page 19.

When the recording is made to the end of the tape,

the tape will be automatically rewound to the beginning and the unit will enter the stop mode. The power remains on.

- * If your TV/monitor is equipped with audio/video inputs ora multiconnector, select the correct input on your TV/monitor.
 - If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector, the input signal is selected automatically when you display "VTR" with the recorder.

D-2



During recording...

If stereo programmes are received,

"STEREO" indicator will be displayed in the window.

If bilingual programmes are received,

select the sound to be monitored with AUDIO MONITOR MAIN/SUB/MAIN, SUB.

Recording is made as follows: D-2

Standard track

Video/audio signals of the TV programme and the main sound of a bilingual programme are recorded

Recorded sounds are monaural.

O PCM track

Audio signals from the connected equipment or from TV are recorded in digital PCM sound. Sound can either be in monaural (when sounds for left and right channel are the same) or in stereo (each sound for left and right channels).

FOR SMOOTH RECORDING

Recording should always be started from the recording pause mode for smooth transitions between scenes. Proceed as follows if the recording was stopped or if you want to record on a pre-recorded tape from a desired point.

To start recording from a particular point

You can decide the starting point for recording while watching the picture.

- 1 Play back the tape and locate the point for recording while watching the picture.
- 2 Press I/► PAUSE/STILL to stop the tape where you wish to start recording.
- 3 Slide
 REC to the right. The recorder will enter the recording pause mode.
- 4 Press II/ PAUSE/STILL at the desired point to release the pause mode. Recording starts.

Note

Be sure not to change the position of REC MODE (SP/LP) between different scenes. Particularly, if you change the switch from LP to SP, a short blank will be recorded.

Frame-by-frame recording

If
REC is slid to the right while the unit is in the recording pause mode, a short recording of approx. 7 seconds will be made, and then the unit enters the recording pause mode again.

Repeat this operation as many times as you like.

TO VIEW ONE TV PROGRMME WHILE RECORDING ANOTHER

- 1 Press TV/VTR so that the "VTR" indicator disappers from the window.
- 2 Select the programme you want to view on the TV.

If your TV is equipped with a TV/VTR input selector, simply set the selector to "TV" and select the programme on the TV.

TO RECORD A TV PROGRAMME WHILE RECORDING AN FM BROADCAST AT THE SAME TIME — FM simulcast recording D-3

Sometimes a TV station and an FM radio station will broadcast a programme simultaneously so that you can record a TV programme in high-fidelity stereo. The TV programme (video and monaural audio) is recorded normally on the standard track and the stereo audio portion is recorded on the PCM track from your FM tuner.

For details on connection.

Operation

Operate as described in "TV programme recording" on page 18 except the following points:

- 1 Press INPUT SELECT so that the "SIMUL" indication appears in the window.
- 2 Select the programme both on the VTR and the FM tuner.

Recording will be made as follows: D-4

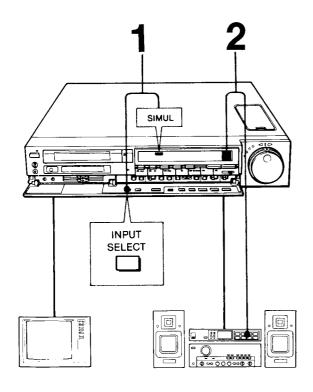
Standard track

Video and audio signals of the TV programme will be recorded here.

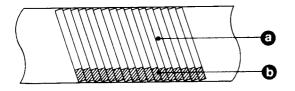
O PCM track

FM broadcast programme from the FM tuner will be recorded in stereo.

D-3

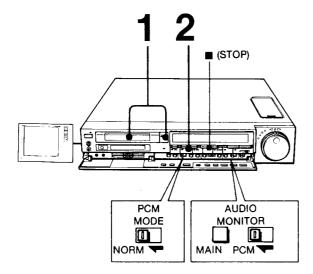






1-6. PLAYBACK

E-1



E-1

Before playing back

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- · Check the position of the selectors:

Set	to
PCM MODE	NORM
AUDIO MONITOR	
Press MAIN/SUB/M.S.	to display MAIN
Set PCM/MIX/STD	to PCM

- Set as above, you can listen to the MAIN language of the bilingual programme and the stereo sound recorded on the PCM track of the tape.
- When nothing is recoded on the PCM track, you will automatically hear the sound recorded on the STD track.

To monitor other kinds of sound, change these settings. See "To select the monitor sound" below.

Note

If the picture is not displayed and/or the sound is not heard or heard only intermittently when a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set AUDIO MONITOR on this unit to STD. (Although AUDIO MONITOR is set to STD, the "PCM" indicator may occasionally light up.)

OPERATION

- 1 Insert a cassette.
- 2 Press ► PLAY.

To stop playing back

Press **STOP**.

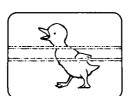
To select the monitor sound

Kind of the tape	Track to	Position of	the selector	
(conditions of recorded signals)	be played back	MAIN/ SUB/M.S.	PCM/MIX/ STD	
Stereo	РСМ	_	PCM	
FM simulcast (Page 20)	РСМ	_	PCM	
Bilingual	РСМ	MAIN, SUB or M.S	PCM	
Audio dubbed (Page 44)	PCM and STD	_	MIX	

[&]quot;-" means that the selector can be set to any of its position.

- * If your TV/monitor is equipped audio/video inputs or a multiconnector, select the correct input on your TV/monitor.
 - If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector, the input signal is selected automatically when you display "VTR" with the recorder.

E-2



To advance or rewind the tape rapidly

Press ►► FF or ◀◀ REW respectively in the stop mode. To stop the tape, press ■ STOP.

Auto play — To play back a tape from the beginning of the tape after rewinding

Press ► PLAY keeping ◀ REW depressed, or press AUTO PB on the Remote Commander.

After the tape is completely rewound, it will automatic:

After the tape is completely rewound, it will automatically be played back.

VARIOUS PLAYBACK MODES

Use the buttons on the recorder or on the Remote Commander.

Picture search — viewing the picture at a fast speed to find a particular scene

Keep pressing ▶▶ FF or ◀◀ REW during playback. When you release the button, the normal playback will be resumed.

Streaks appear and the sound is muted during "Picture search" and "Still picture". E-2

Still picture (playback pause)

Press II/ PAUSE/STILL during playback. The sound is muted.

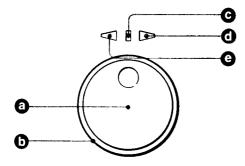
To resume normal playback, press **II**/► PAUSE/STILL again or press ► PLAY.

To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and playback will be resumed.

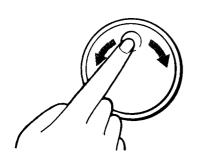
To obtain better playback picture in variable playback modes

- If the still picture seems to shake, press + or - SLOW/STILL ADJ in the upper compartment until the picture stabilizes.
- If streaks or noise bands appear in still, frame-by-frame, normal (x1), double (x2), 1/10 or 1/5 speed picture, set to 1/10 or 1/5 speed picture mode and press + or -SLOW/STILL ADJ.

E-3



E-4



E-5



VARIOUS SPEED PLAYBACK USING THE JOG DIAL AND SHUTTLE RING

É-3

- **JOG** dial
- SHUTTLE ring
- C Lights when JOG and SHUTTLE are operable or in use.
- Indicates the forward playback.
- Indicates the reverse playback.

Using the JOG dial E-4

- 1 Play back a tape and stop the playback by pressing ■I/► PAUSE/STILL.
- 2 Turn the JOG dial.

The tape will be played back at the speed at which you are turning the dial (1/10, 1/5 or normal speed). Turn it clockwise for forward playback, or anticlockwise for reverse playback.

3 When you stop turning the JOG dial, the still picture will be displayed.

Using the SHUTTLE ring E-5

- 1 Play back a tape and stop the playback by pressing
 PAUSE/STILL.
- 2 Turn the SHUTTLE ring and hold it at the position where the desired playback speed is obtained. You can select 1/5, normal, double or continuous picture search speed. Turn it clockwise for forward playback, or anticlockwise
 - for reverse playback.
- 3 When the SHUTTLE ring is released, the still picture will be displayed.

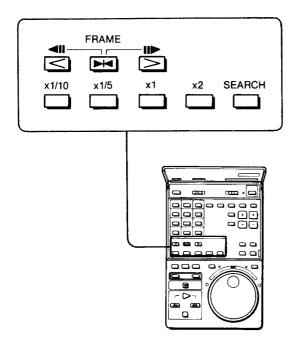
To use the JOG dial and SHUTTLE ring on the Remote Commander

Before operating JOG or SHUTTLE, press the JOG SHUTTLE function button on the Commander so that the associated indicator lights. The VTR will enter playback pause mode.

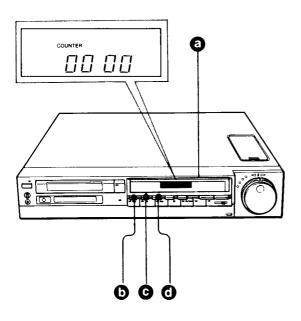
If JOG and SHUTTLE on the Commander are not used for more than one minute, their function will be released automatically in order to prevent undue battery wear. To use JOG and SHUTTLE again, press the JOG SHUTTLE function button once more:

- JOG and SHUTTLE on the Commander will function in still picture and various speed playback modes.
- Once you have used JOG and SHUTTLE on the Commander for various speed playback, then, JOG and SHUTTLE on the unit will not function.

E-6



F-1



VARIOUS PLAYBACK MODES USING THE REMOTE COMMANDER E-6

Frame-by-frame picture

Press FRAME ▮▮► (forward) or ◀▮▮ (reverse) in still picture mode.

Press > PLAY to resume normal playback.

Variable speed playback

Press the desired speed button during playback or in still picture mode. The sound is muted (except in x1 and x2 forward picture).

▶ still picture

x1/10: slow motion picture at 1/10 normal speed x1/5: slow motion picture at 1/5 normal speed

x1: normal speed picturex2: double speed picture

SEARCH: continuous picture search

To reverse the direction of the variable speed playback, press ◀▮1. To resume forward playback, press▮▮►.

To change the playback speed, simply press the desired speed button.

To resume normal playback, press ► PLAY.

USE OF THE TAPE COUNTER

The tape counter indicates the relative position of programmes on the tape.

F-1

- Display window
- O COUNTER/REMAIN
- G COUNTER RESET
- GO TO ZERO

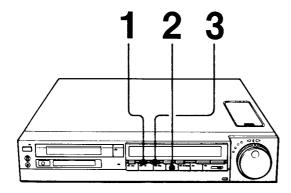
To index the tape contents

Before starting recording or playback, press CCUNTER RESET to set the counter to 0000. By noting the counter reading at the desired point, you can easily fine that point later by referring to the counter.

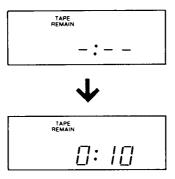
Note to list the programmes and their counter eadings.

- The counter reading is automatically reset tozero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the assette is kept inserted in the cassette holder.
- The counter reading will not exactly correspend to the position of the tape after the tape has been topped or run repeatedly in fast-forward or rewind mods.

F-2



F-3



GO TO ZERO — To stop the tape at a particular point F-2

- 1 During recording or playback, press COUNTER RESET at the point you want to locate later.
- 2 When recording or playback is finished, stop the tape.
- 3 Press GO TO ZERO. The tape will be rewound or advanced close to the counter 0000 point.

GO TO ZERO play — To start playback automatically from the counter zero point

Press ➤ PLAY after pressing GO TO ZERO. The indicator on ➤ PLAY will blink.

To check the remaining recording or playback time F-3 During recording or playback, press COUNTER/REMAIN.

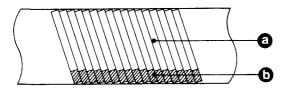
The displayed remaining time will decrease as the recording or playback goes on.

To display the tape counter, press COUNTER/REMAIN again.

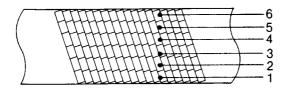
- The remaining time appears only after the "-:--" indication has been displayed for several seconds.
- If you want to display the remaining time during x2 (in the right direction) and x1, x2 (in the reverse direction), first display the remaining time in the normal playback mode. Then, set in the above speed and press COUNTER/REMAIN.
- During the frame-by-frame or the slow-speed playback, the display indicates the remaining time when the playback started.
- On the accuracy of the remaining time counter:
 - —For commercially available recorded tapes, the counter will not indicate the exactly same time as the recorded time labeled on the tape.
 - —For damaged tapes and nonstandard tapes, the accuracy will be degraded.
 - —At the beginning of a tape, especially when the tape has just been rewound, the remaining time will be calculated greater than the actual time (by several minutes max.).

1-7. DIGITAL MULTI AUDIO RECORDING AND PLAYBACK

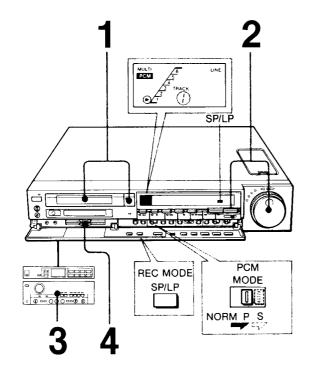
G-1



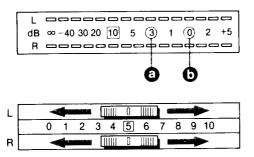
G-2



G-3



G-4



Normally, both the video and audio signals can be recorded on your video tape.

G-1

O Video + audio

Audio

However, you can record up to 6 tracks of only the audio signals in the digital mode, using the full width of the tape. This is called digital multi audio recording, providing a high-fidelity stereo sound. G-2

To connect the VTR to your audio system.

RECORDING G-3

Before recording

Check the position of the selectors:

Set	to		
REC MODE	SP or LP		
PCM MODE	P or S*		

*Set to either of two positions. They activate in the same way.

Operation

- 1 Insert a cassette.
- 2 Turn JOG or press +/- PROGRAM/TRACK/INDEX to select the digital multi audio track on which recording should be made.
 - —Adjust "▶" (red indication) to the desired track.
- 3 Turn on the power on the audio equipment and set to the playback mode.
- 4 Adjust REC LEVEL. Verify the adjustment with the peak level meter of the recorder.

Recording level adjustment G-4

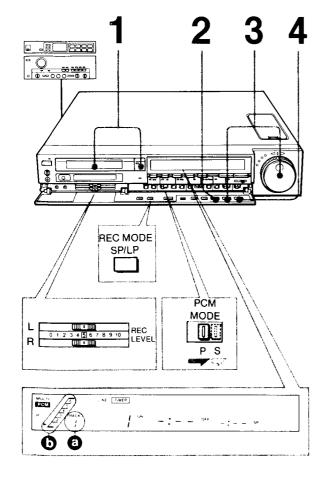
Referring the peak level meter, manually adjust the recording level with REC LEVEL.

Select the best recording level for each source as follows: When recording sources with many high frequency signals (ex: trampets etc) set so that the peak programme meters deflect -3 dBs. ②

When recording sources with midium or lower frequency signals (ex: vocals) set so that the peak programme meters deflect 0 dB. ①

During playback, you can read the recorded level on the peak level meter.

G-5



TIMER RECORDING

If you connect any audio tuner with timer presetting functions, you can record up to 6 radio programmes in the digital PCM sound.

6 programmes can be recorded either on 6 separate audio tracks (for parallel recording) or they can be recorded successively on one track (for series recording).

Before presetting G-5

- Turn on the audio tuner.
- Check if the clock is set correctly. (Page 16.)
- · Check the position of selectors:

Press	to display		
REC MODE	SP or LP		
Set	to		
PCM MODE	P (parallel) or S (series)		
REC LEVEL	"5"		

Presetting

- 1 Insert a cassette.
- 2 Press TIMER SET.
- 3 Set the following items by turning JOG and pressing NEXT.
 - audio track (Set the track number displayed in numeral.)
 - day of the week
 - recording starting time
 - ending time

(Refer to "Timer-activated recording" on page 33.)

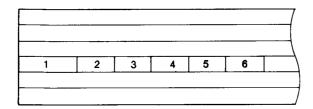
4 Press TIMER REC.

- After having set the timer, do not change the position of PCM MODE because the timer recording will not be made correctly.
- Timer presettings of TV programme recordings and digital multi audio recordings can be made on one tape. However, such presettings are not recommended because you must verify the position of the PCM MODE switch before each timer recordings.
- To preset or check the digital multi audio track while you are using this unit
 - When the unit is in digital multi audio playback/ recording
 - The track for presetting. Set with JOG.
 - The track on which playback or recording is being made. Select with PROGRAM/TRACK/INDEX.
 - 2) When the unit is in normal playback/recording
 - **1** The track for presetting. Set with JOG.

G-6

1	
5	
4	
2	
6	
3	7

G-7



Parallel and series recordings

Parallel recording — stereo recording of one programme on each track

- After a programme is recorded on one track, then, another recording will begin on another track from the beginning of the tape.
- You can select the track in any order for any programme. G-6

Series recording — Stereo recording in series on only a single track

 After one programme is recorded, another one is recorded successively on the same track. G-7

Notes

On parallel recording

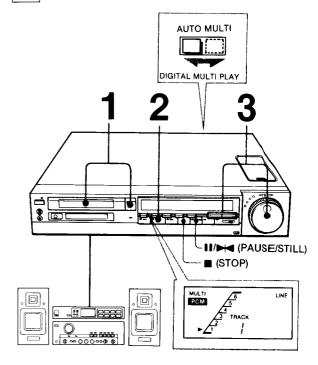
- If a programme is already preset on a track, you cannot preset another programme on the same track.
- For the first timer-recording programme, the tape will not be rewound automatically to the beginning. The recording will start from the current position of the tape.
- If the next programme starts before the tape has been rewound completely, the beginning of the programme will not be recorded.

On series recording

- The track on which timer recordings are made, is the track that is selected in the last timer programme setting.
- After all the preset programmes are preset, the tape will not be rewound to the beginning.

PLAYBACK G-8

G-8



Before playback

- Turn on the audio system so that sound is heard from speakers.
- Set DIGITAL MULTI PLAY on the rear to:
 AUTO for playing back tapes recorded by this VTR.
 MULTI for playing back tapes recorded by other VTRs
 (when their sound cannot be heard with the switch set
 to AUTO).

Playback

- 1 Insert a cassette.
- 2 Press ► PLAY.
- 3 Turn JOG or press +/- PROGRAM/TRACK/INDEX to select the track to be monitored. The red "▶" indicates the selected track.

Only the track marked with red bar on the rights ide has certain recorded signals. Recordings are not made on the tracks without this indication.

To stop playing back

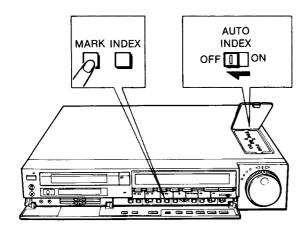
Press STOP.

To stop the tape for a moment Press 11/▶ PAUSE/STILL.

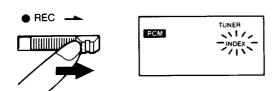
- When DIGITAL MULTI PLAY is set to MULTI, all pars light up even if nothing has been recorded on the tracks.
- While playback, we recommend that you set REC LEVEL to the "0" position. If not noise which appears when you stop the tape, may damage the speakers.

1-8. INDEX FUNCTION

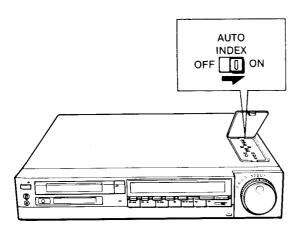
H-1



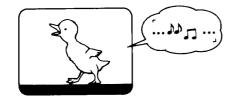
H-2



H-3



H-4



The desired programme can be easily located by the index signal marked on the tape.

This function is effective either to normal video-audio recorded tapes and to digital multi audio recorded tapes.

TO MARK INDEX SIGNALS

Index signals can be marked at any desired point on the tape during recording, timer recording or normal playback.

H-1

- 1 Set AUTO INDEX in the upper compartment to OFF.
- 2 Press INDEX MARK at the point where an index signal is to be marked.

The "INDEX" indication blinks while the index signal is being marked.

An index signal is automatically marked on the tape when

• REC is slid to the right or when a timer recording starts.

H-2

The "INDEX" indication blinks in the window while the index signal is being marked.

Notes

- Index signals will not be marked on the tape when the recording is started by releasing the recording pause mode.
- The index function operates also with the index signals marked using the index function (same format) of other recorders.

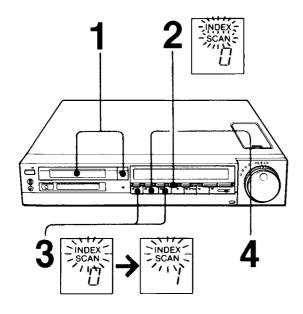
TO MARK INDEX SIGNALS AUTOMATICALLY IN DIGITAL MULTI AUDIO RECORDING [H-3]

Set AUTO INDEX in the upper compartment to ON. The VTR searches for the blank spaces (of approx. 3 seconds) between programmes (musics etc.), and marks index signals.

The "INDEX" indication blinks while the index signal is being marked.

- The sound will decrease and be kept at this volume while the index signal is being marked in the playback mode. In addition, a black bar noise will appear at the bottom of the playback picture during marking H-4 However, the recorded signals are not affected.
- During playback, index signals can be marked on cassette tapes whose safety tab is slid out (including commercially available prerecorded video tapes).
- An index signal may not be registered immediately before a point on the tape where the recording tape speed changes.
- You cannot mark nor erase index signals if no video/audio signals is recorded on the PCM track of the tane

H-5



- Between each index signal, there must be a minimum space of 2 minutes for LP mode and 1 minute for SP mode.
 - If index signals are marked at shorter intervals, index scan or search functions may not be operated correctly.
- For tapes that index signals are marked automatically, index scan or search may not be made correctly because of the quality of the audio source.
 In this case, set AUTO INDEX to OFF and mark index signals manually.
- Index marking and erasing cannot be made during tape editing. (When the EDIT lamp is lit.)

INDEX SCAN

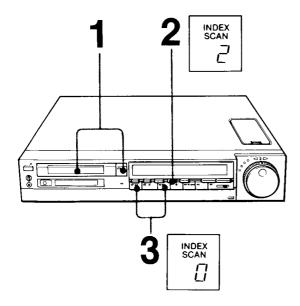
 To play back the beginning of each programme in sequence H-5

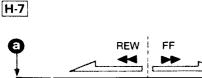
Before operating

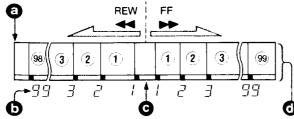
Set PCM MODE to NORM, or P (or S). If you have set to P (or S), select the digital multi audio track.

- 1 Insert a cassette that has index signals recorded.
- 2 Press INDEX once. The "INDEX" and "SCAN" indications blink alternately.
- 3 To scan the previous programmes, press ➡ REW. To scan the programmes ahead, press ►► FF. The tape will be rewound or rapidly advanced to the next index signal marked. While scanning, the "INDEX" and "SCAN" indicators blink, simultaneously. The tape will be played back for approximately 10 seconds, and then, rewound or advanced to the next index signal. Everytime an index signal is detected and playback begins, the displayed index number increases.
- 4 At the desired programme, press ► PLAY.

 Normal playback of that programme will begin.







INDEX SEARCH H-6

To locate the desired programme

You can locate the desired programme and play it back automatically by designating the number of its index signal. Up to 99th index signal from the present position on the tape can be located.

Before operating

Set PCM MODE to NORM or P (or S). If you have set to P (or S), select the digital multi audio track

- 1 Insert a cassette that has index signals marked.
- 2 Press INDEX several times until the index number of the desired programme is displayed. For instance, to locate the second programme ahead, two index signals should be detected, so press INDEX

until "2" is displayed. On the other hand, to locate the second programme behind, three signals, should be detected, so press the button until "3" is displayed.

- H-7 a Beginning of the programme
 - Index number
 - Present position
 - O Video tape (or one of the 6 digital multi audio tracks)

Notes

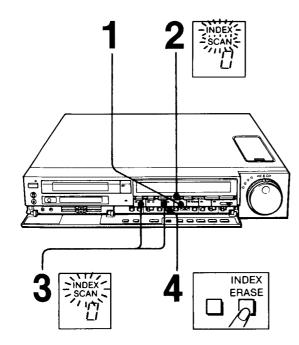
- To designate higher index number, first press INDEX several times, then continue with +/-PROGRAM/TRACK/INDEX or JOG so that the desired index number display appears.
- If you enter an incorrect index number, press STOP to reset the display.
- 3 To locate a previous programme on the tape, press ◀◀

To locate a programme ahead, press ▶► FF.

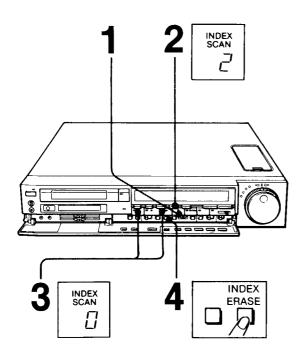
The tape will be rewound or rapidly advanced. Every time an index signal is detected, the displayed number will decrease. When the number reaches 0, playback of your desired programme will begin.

- · If, on a tape, there are portions on which index signals are marked on the first PCM audio track in the digital multi audio mode, and portions on which index signals are marked in the normal mode, the index scan and search in the normal mode cannot be made correctly.
- For index scan or search in digital multi audio mode, set AUDIO MONITOR to PCM or MIX.
- Index scan and search can be activated during playback mode. (In the mode which was being selected when the playback started.)
- While the index signals are being scanned or located, nothing is displayed on the monitor and sound is cut off.
- If the tape is rewound to the beginning during index scan or index search, playback will begin automatically.
- · If the tape reaches the end during index scan or index search, the tape will not be rewound automatically.

H-8



H-9



When the desired programme cannot be played back with the index function, check the following:

- The nearest index signal may not have been counted.
 If the point where you pressed ◄◄ REW or ►► FF is fairly close within 2 minutes of the normal tape-run to the nearest index signal, that signal will not be counted.
- Is there a space of more than 2 minutes between two index signals?

If there is more than one index signal marked within an interval of 2 minutes of the normal tape-run, the mechanism may not function properly.

TO ERASE INDEX SIGNALS [H-8]

Before operating

Set PCM MODE to NORM or P (or S). If you have set to P (or S), select the digital multi audio track.

Erasing while index scanning — To erase the index signals in sequence

- 1 Stop the tape with STOP.
- 2 Press INDEX once.
- 3 Press ■ REW or ▶ FF. The tape will be rewound or rapidly advanced to the next index signal and playback will begin.
- Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.

The "INDEX" indication blinks and the "SCAN" indication lights steadily while the index signal's erasure.

After the erasure, index scan will resume. At each index signal located, press INDEX ERASE.

To stop index scanning, press ■ STOP.

Notes

- Press INDEX ERASE more than 2 seconds after the playback starts.
- The index signals recorded immediately after an unrecorded portion on a tape, or on a portion where the recording tape speed has been changed or two recordings have been made continuously will not be erased.

During index erasing, a black bar noise will appear at the bottom of the playback picture.

Erasing while index searching — To erase a particula r index signal [H-9]

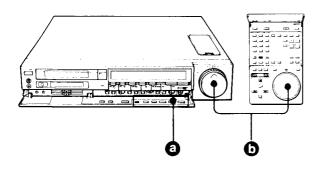
- 1 Stop the tape with STOP.
- 2 Press INDEX button several times until the number of the index signal to be erased is displyed.
- 3 Press ■ REW or ► FF.
- Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.

The "INDEX" indication blinks while the indexs ignal is being erased.

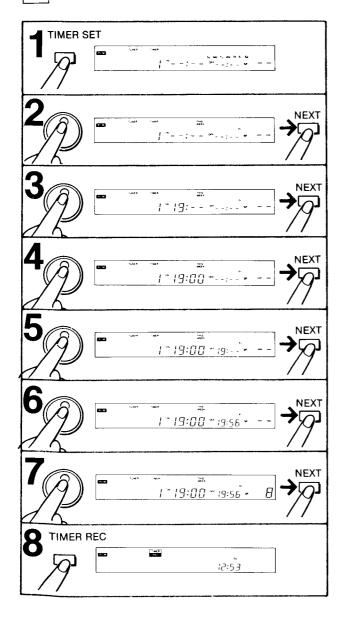
After the erasure, the unit returns to the normal playback.

1-9. TIMER-ACTIVATED RECORDING

1-1



1-2



Six recordings can be preset to be made between today and Saturday of the week after next.

							~Today
Su	Мо	Tu	We/	Th	Fr	Sa	•
				2	3	4)	-This week
(5	6	7	8	9	10	11).	Name and
12	13	14	15	16	17	18)	Next week
19	20	21	22	23	24	25	The week after next

Before setting the timer

- The clock must be set correctly.
 For the setting, see page 16.
- Make sure the cassette tape is long enough to record all the programmes.
- Be sure the safety tab of the cassette has not been slid out.
- Set the selectors as in "Before recording" on page 18.

1-1

Buttons for timer setting

You can use the buttons and JOG dial on the recorder.

NEXT button

Every time you press the NEXT button, the item to be set will blink.

6 JOG dial

To set the week and day, the turn-on and turn-off times and the channel, turn clockwise to advance and anticlockwise to reverse.

Operation 1-2

Suppose you want to make a recording of channel 8 from 7:00 PM to 7:56 PM Friday.

- 1 Press TIMER SET.
- 2 Set the week and day with JOG. Then, press NEXT.
- 3 Set the turn-on hour with JOG. Press NEXT.
- 4 Set the minute with JOG. Press NEXT.
- 5 Set the turn-off hour with JOG. Press NEXT.
- 6 Set the minute with JOG. Press NEXT.
- 7 Set the TV programme number to be recorded with JOG.

Press NEXT.

To preset other programmes, repeat steps 1 to 7.

8 Press TIMER REC.

The power will be turned off and the recorder will enter the standby mode. (The current time is displayed.)

Recording will start at the preset time and will automatically stop when the recording is completed. The memory of the timer programme will be erased if it is for only one day and the timer programme numbers will advance one by one.

Notes

- Once the TIMER REC indicator has been displayed, only the functions of CHECK and TIMER REC can be activated. For the usual manual operations, press TIMER REC again so that the indicator goes off, and then, turn on the power.
- Timer recordings of the signals from the AUDIO IN jacks, in the digital multi audio mode can also be made.
 See page 27.

If you select an incorrect digit for the turn-on/off time setting, press CLEAR. The programme which is currently being set will be cancelled but the other programmes previously set will remain.

To set the week and day

The week and day indications change in the direction of the arrow, starting from today, when you turn JOG clockwise; and in the reverse direction when you turn JOG anticlockwise.

The day(s) you want the recording(s) made	Display
At the same time every day	Su Mo Tu We Th Fr Sa
Only one day	TḤIS WEEK We (Today) → Th →···→ Sa¬ NEXT WEEK → Su →···→ Sa WEEK AFTER NEXT ¬ Su →···→ Sa
At the same time on the same day every week	EVERY WEEK → Su →···→ Fr → Sa —
At the same time every day from Monday to Friday	→ Mo Tu We Th Fr——
At the same time every day from Monday to Saturday	→ Mo Tu We Th Fr Sa

BEFORE THE TIMER-ACTIVATED RECORDING STARTS

To check the timer settings

Press CHECK.

Every time you press CHECK, each programme will be displayed in the window.

To change the settings

- 1 Press TIMER REC. The TIMER REC indicator goes off.
- 2 Press CHECK to select the programme to be changed.
- 3 Press TIMER SET.
- 4 Press NEXT until the item to be changed blinks.
- 5 Change the setting with JOG.
- 6 Press NEXT so that the tape counter and the current time appear in the window.
- 7 Press TIMER REC again to reactivate the timer.

To erase the memory of a particular programme

- 1 Press TIMER REC. The TIMER REC indicator goes off.
- 2 Press CHECK to select the programme to be erased.
- 3 Press CLEAR. The memory of the programme will be eliminated.
- 4 If other programmes have been preset for recording, press TIMER REC again to reactivate the timer.

DURING RECORDING

To stop the timer recording

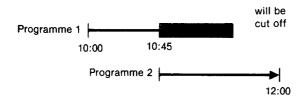
Press TIMER REC. The recording will stop and the power will be turned off.

When the tape ends during timer recording

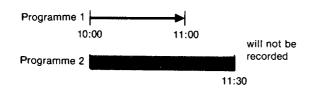
The tape stops but the tape will not be rewound.

The ■ STOP and **II**/► PAUSE/STILL buttons do not function during a timer recording.

1-3



1-4



NOTES ON TIMER-ACTIVATED RECORDINGS

Troubles when TIMER REC is pressed

The cassette will be ejected automatically

The "TIMER-REC"

indicator disappears

→ {

- The cassette inserted has the safety tab slid out.
- No cassette is inserted.
- The tape is at its end
- The turn-on time has been set before the current time.

When the presettings of your timer-activated recordings overlap 1-3

The recording of programme 2 will begin before the programme 1 is finished.

In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of two programmes are the same 1.4 The recording of the programme having the lower programme number will be made. The memory of the programme having the higher number will be cleared. In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of one programme is the same as the turn-off time of another programme

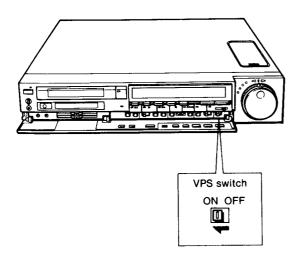
When a timer recording starts, the unit is set to recording pause mode 6 seconds before the preset turn-on time. The pause mode is released exactly at the preset turn-on time and recording starts approximately 1 second later. Therefore, the end of the first programme will not be recorded for 6 seconds. Both recordings, however, will not be made smoothly.

If a power interruption occurs before a timer recording The clock will stop and "Su 0:00" will light up. This means that the memory of the timer programmes has been completely erased. Reset the clock and timer programmes.

A short power interruption of less than approximately 20 seconds will not affect the memory. The clock will show the correct time and the timer programmes will be performed.

If the power was interrupted during a timer recording Recording will stop and the power will be turned off. If the interruption was less than approximately 20 seconds, the recording will resume.

1-5



— EV-S850PS only 1.5

To avoid missing a timer-activated recording because of a delay in the transmission sequence or a change in the programme schedule, the West German broadcasting stations have agreed to transmit a special code, called the VPS (Video Program System) code, together with the TV programme. The EV-S850PS is equipped with a VPS switch which allows you to preset recording times and insures that your programmes will be recorded regardless of delays.

- 1 Set the VPS switch to ON. The VPS indication appears in the display window.
- 2 Set the timer to the time listed in the VPS programme guide which corresponds to the programme you want to record.

The unit will be turned on 10 minutes before the preset time, but recording will start when the preset programme begins.

Notes

- If the station you want to record fails to transmit the VPS code signal with the programme, or the VPS code cannot be detected for some reason, recording will begin at the time you preset.
- Be sure to set the timer according to the VPS programme guide, otherwise programme will not be recorded.
- Even if the preset programme does not begin, the unit will remain prepared for recording until 4:00 AM of next day. Or the unit will be prepared to record for 23 hours 50 minutes when the preset time is between 0:00 AM to 4:00 AM.
- When the unit receives a VPS programme interruption code during recording (for example, when urgent news is inserted), it will stop recording. As soon as the interrupted programme resumes, recording will continue.

Multi-programme and multi-channel recording

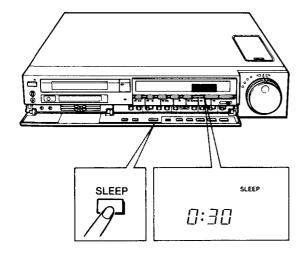
The VPS function allows you to record several successive programmes.

Occasionally, these programmes may overlap or conflict with one another. In these cases the following rules apply.

- If you are recording two successive programmes, on the same channel and the first is delayed past the starting time of the second, the first setting is cancelled and the second programme is recorded.
- If you are recording two successive programmes, each on a different channel, and the first is delayed past the starting time of the second, the first will be cancelled, and the VPS function will not be activated for the second programme and the second programme will be recorded beginning at the preset time even if the second programme is delayed.
- If the first programme is delayed so that it is not finished before the second is scheduled to begin, the unit will automatically switch to the second programme at the preset time and the second programme will be recorded.

1-11. USE OF THE SLEEP TIMER

1-6



— To preset the turn-off time of the unit 1-6

When recording or playback is being made, preset the turnoff time of the unit.

The recording or playback duration can be set for up to 5 hours by 30 minutes.

Press SLEEP.

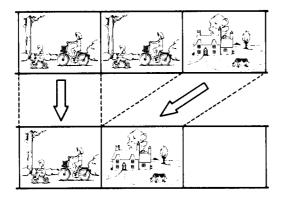
Every time you press on SLEEP, the recording/playback duration indication changes as follows:

$$0:30 \rightarrow 1:00 \rightarrow 1:30 \rightarrow 2:00 \rightarrow \cdots \rightarrow 5:00 \rightarrow \begin{array}{c} \text{Current time display} \\ 30 \text{ min. One hr. One and } 2 \text{ hrs.} \\ & \text{a half hr.} \\ \end{array}$$

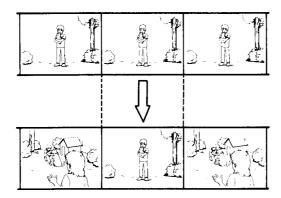
The duration decreases minute by minute as the recording or playback advances. The power will be turned off automatically about 30 seconds after the duration time has elaseped.

1-12. TAPE EDITING

J-1



J-2



ADVANCED EDITING

If another Sony VTR with intercomponent control terminals are used with this unit, use of the supplied Remote Commander brings you much more convenience in editing operations.

You can operate separately the two units (player and recorder) by the supplied Commander.

In addition, once you have set them in tape editing standby mode, you can start and stop playback/recording simultaneously with both units simply by pressing the SYNCHRO EDIT button on the Commander. (= SYNCHRO-EDITING)

Synchro-editing

With this function, playback start/stop of one VTR can be activated in synchronization with recording start/stop of the other VTR.

This function is efficient, for example, when you want to reproduce only the particular portions of a tape onto another tape, or to insert the selected scenes from an original tape onto a pre-recorded tape, etc.

Two methods of synchro-editing are available:

When this unit is used as a player J-1

"Assemble editing" can be made.

On this unit, designate the desired scenes of the criginal tape.

These scenes can be "assembled" (= recorded) onto the other tape of another VTR.

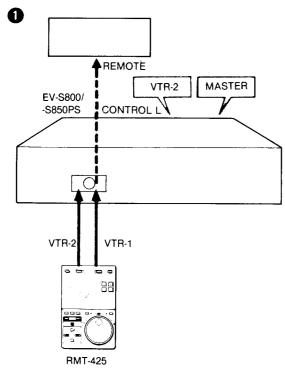
When this unit is used as a recorder J-2

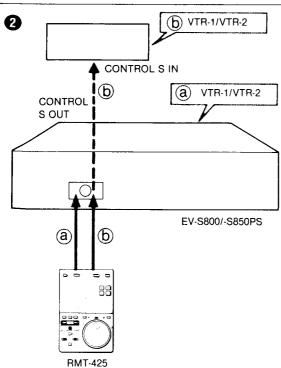
"Automatic insert editing" can be made.

On this unit, locate a portion of the tape on whichany scenes from other original tape must be "inserted".

Notes

- Do not use simultaneously the above "synchro-editing" and the insert recording function of the VTR (ex CCD-V8 series) which is used with this unit.
- If the VTR to be used with this unit is equipped with the CONTROL L connector and the CONTROL S INjack, make the connection to the CONTROL S IN jack, If the CONTROL L connector is used, the editing maynot be made correctly.





How are the control signals transmitted? J-3

 About MASTER/SLAVE and COMMAND MODE selectors on this unit —

When the connection is made to the CONTROL L jack of this unit

MASTER/SLAVE selector Set to MASTER.

If this unit is controlled by another equipment (ex: RM-E100V), set to SLAVE.

COMMAND MODE selector Set to VTR-2.

Set as above, commands emitted by the Remote Commander in the VTR-2 mode control only this unit and commands in the VTR-1 mode are transmitted to the other VTR through this unit.

When the connection is made to the CONTROL S OUT jack of this unit

COMMAND MODE selector

Set to VTR-1 or VTR-2 so that the command mode of this unit is different than the other VTR's command mode.

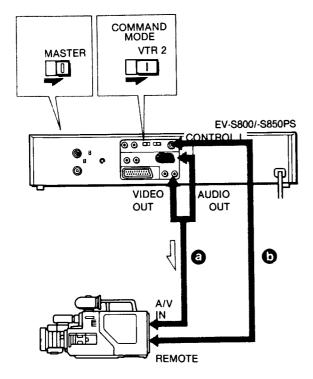
• MASTER/SLAVE selector

Set to either position. This selector has no effect in this connection.

Set as above, commands emitted by the Remote Commander in a command mode are effective only to one unit and commands in the other command mode control only the other unit.

In both cases (1) and 2), point the Commander to the remote sensor of this unit and switch the command mode selector on the Commander to VTR 1 or VTR 2 each time you want to control the player or the recorder in editing operations.

J-4



Editing tapes from this unit to the 8 mm video cameral cassette recorder having a 5-pin REMOTE connector

Assemble editing —

Connection

J-4

Connect the CONTROL L connector of this unit to the REMOTE connector of the video camera/cassette recorder. For audio/video connection, see the illustration.

Before operating

On this unit,

set the switches as follows:

- MASTER/SLAVE on the rear panel to MASTER.
- COMMAND MODE in the upper compartment to VTR 2.
- AUDIO MONITOR in the front panel to the appropriate position. (See page 21.)

On another VTR

Set to the LINE IN mode.

Operation

Set the Commander's command mode selector to	Operation
1 VTR 1	Play back the tape and decide the starting point of the recording. Set to the recording pause mode.
2 VTR 2	 Play back the tape and decide the ending point of the recording. Press COUNTER RESET to display "0000" in the window. Rewind the tape and decide the starting point of the recording. Set to the playback pause mode. Press SYNCHRO EDIT. Playback and recording start simultaneously. When the counter reaches "0000" point, editing stops automatically and each unit enters the playback or recording pause mode. Repeat steps 1 to 5.

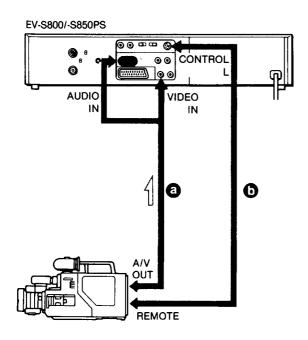
For accurate setting of the starting/ending point, use JOG/ SHUTTLE.

To stop the on-going editing operation, press SYNCHIRO EDIT or STOP with Commander's command mode sell ector set to VTR 2.

Note

During synchro-editing, you can set this unit to various speed playback modes.

(ex: slow-motion, frame-by-frame pictures etc. can be recorded.)



Editing tapes from the 8 mm video camera/cassette recorder having a 5-pin REMOTE connector to this unit

- Automatic insert editing -

Connection

J-5

Connect the CONTROL L connector of this unit to the REMOTE connector of the video camera/cassette recorder. For audio/video connection, see the illustration.

Before operating

On this unit

Set the switches as follows:

- MASTER/SLAVE on the rear panel to MASTER.
- COMMAND MODE in the upper compartment to VTR 2. Press INPUT SELECT to display LINE in the window.

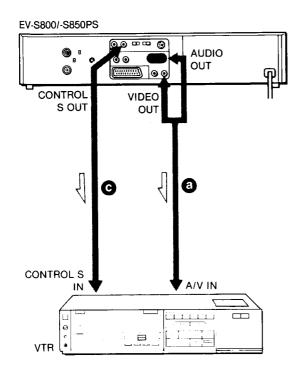
Operation

Set the Commander's	
command mode selector to	Operation
1 VTR 1	 Play back the tape and decide the starting point of the recording. Set in the playback pause mode.
2 VTR 2	 Play back the tape and decide the ending point of the recording. Press COUNTER RESET to display "0000" in the window. Rewind the tape and decide the starting point of the recording. Set to the recording pause mode. Press SYNCHRO EDIT. Playback and recording start simultaneously. When the counter reaches the "0000" point, editing stops automatically and each unit enters the playback or recording pause mode.

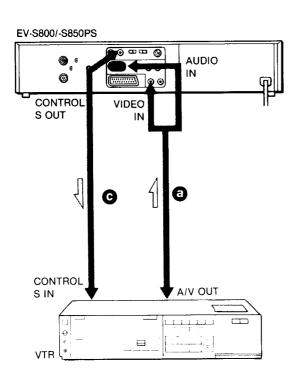
For accurate setting of the starting/ending point, use JOG/SHUTTLE.

To stop the on-going editing operation, press SYNCHRO EDIT or STOP with Commander's command mode selector set to VTR 2.

J-6



J-7



Editing tapes from this unit to a Betamax or 8 mm VTR having a CONTROL S IN jack — Assemble editing —

Connection

J-6

Connect the CONTROL S OUT jack of this unit to the CONTROL S IN jack of another VTR.

For audio/video connection, see the illustration.

Before operating

On this unit

Set the switches as follows:

- COMMAND MODE in the upper compartment to VTR 1 or VTR 2 according to another VTR's type.
- AUDIO MONITOR in the front panel to the appropriate position. (See page 21 "To select the monitor sound".)

On another VTR

Set to the LINE IN mode.

Operation

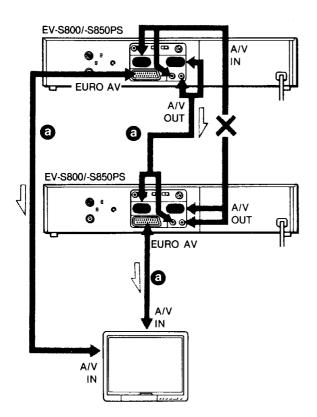
Operation is similar to that is described in "Assemble editing" on page 45. However, note that Commander's command mode selector should be set to the same command mode than that of the VTR to be controlled.

Editing tapes from a Betamax or 8 mm VTR having a CONTROL S IN jack to this unit — Automatic insert editing —

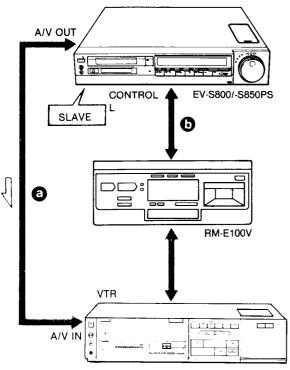
Connection

J-7

Connect the CONTROL S OUT jack of this unit to the CONTROL S IN jack of another VTR. For audio/video connection, see the illustration.



J-9



Before operating

- Set COMMAND MODE in the upper compartment to VTR 1 or VTR 2 according to another VTR's type. (See page 21 "To select the monitor sound".)
- Press INPUT SELECT to display LINE in the display window.

Operation

Operation is similar to that is described in "Automatic insert editing" on page 38. However, note that Commander's command mode selector should be set to the same command mode than that of the VTR to be controlled.

Caution J-8_

Do not make the audio/video in and out connections simultaneously between two VTRs.

Editing tapes from this unit to certain VTRs by using the RM-E100V editing controller J-9

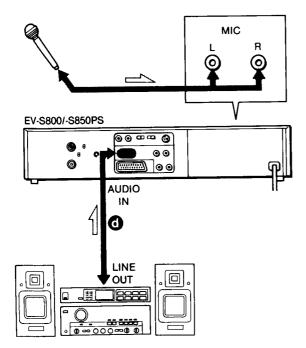
Connect the RM-E100V between the video camera recorder and this unit. With this controller, you will be able to preset the locations of the scenes you want to record (up to 8) in the controller and with a press of a button, these scenes will be recorded by this unit automatically in the order preset.

For details, refer to the instruction manual of the RM-E100V.

Note

Set MASTER/SLAVE selector of this unit to SLAVE. (COMMAND MODE selector can be set at any position.)





AUDIO DUBBING

Connection J-10

To dub signals from the audio system

Connect AUDIO IN of this unit to the REC OUT jacks of the audio system.

To dub signals from the microphones

Connect microphone(s) to MIC L/R.

To dub signals of TV programmes

You can record audio signals from the built-in tuner.

Audio signals are dubbed as follows:

Track	РСМ	track
Microphone connected to	L channel	R channel
L jack	Microphone sound	Microphone sound
R jack		Microphone sound
L and R jacks	Microphone sound from the L jack	Microphone sound from the Rjack

Operation

- 1 Set PCM MODE to NORM.
- 2 Press INPUT SELECT and display:
 - LINE to dub audio signals from the audio system and/or microphone(s).
 - TUNER to dub signals of TV programmes and/or microphone(s).
- 3 Press ▶.
- 4 Decide the starting point of audio dubbing, and press
 ■1/►◄.
- 5 Press AUDIO DUB.
- 6 Press II/► to release the pause mode, and at the same time start the audio source—such as talking into the microphone, playing back a tape recorder, etc.

Notes

- When the tape which is recorded in the SP mode is used for dubbing, the black band appears in the center and lower positions of the screen.
 - When the tape which is recorded in the LP mode is used for dubbing, the black band appears in the lower position of the screen. But the recorded picture will not be affected.
- When the tape which is recorded in the different recording times is used for dubbing, noise will be heard at the point where the recording time is changed.

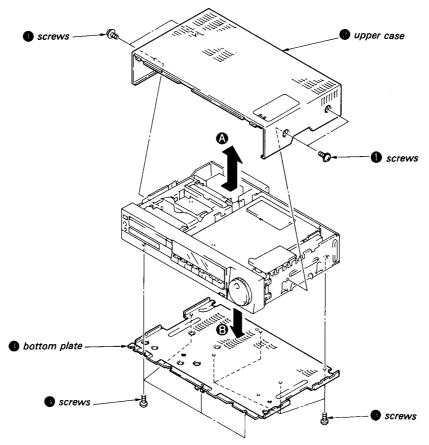
For PCM recording using a PCM digital audio processor which is not based on the 8 mm PCM format

Set SHRPNESS to the position between the top center and SHARP, and set REC MODE to SP.

SECTION 2 DISASSEMBLY

2-1. REMOVAL OF CABINET CASE

- 1) Remove the four screws 1.
- 2) Remove the upper case 2 in the direction shown by the arrow **A**.
- 3) Remove the eight screws 3.
- 4) Remove the bottom plate in the direction shown by the arrow •.



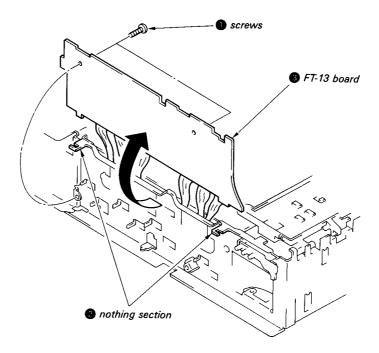
2-2. REMOVAL OF FRONT PANEL

- 1) Remove the three screws 1.
- 2) Pull out the connector (CN2) and remove the control switch block 3.
- 3) Remove the five claws 1 and the notching section 1.
- Remove the connector and remove the front panel in the direction shown by the arrow.

 control switch block
 claws
 front panel
 notching section
 connector
 connector
 connector
 connector
 connector
 connector
 connector
 connector
 claws

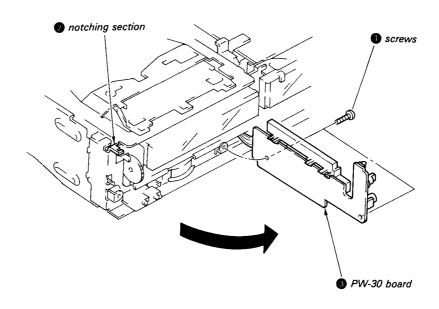
2-3. OPENING OF FT-13 BOARD

- 1) Remove the two screws 1.
- 2) Remove the FT-13 board 3 from the two notching section 2.
- 3) Open the FT-13 board in the direction shown by the arrow.



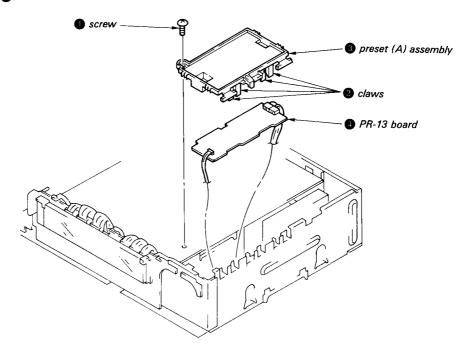
2-4. OPENING OF PW-30 BOARD.

- 1) Remove the two screws 1.
- 2) Remove the PW-30 board **3** from the notching section
- 3) Open the PW-30 board 3 in the direction shown by the arrow.



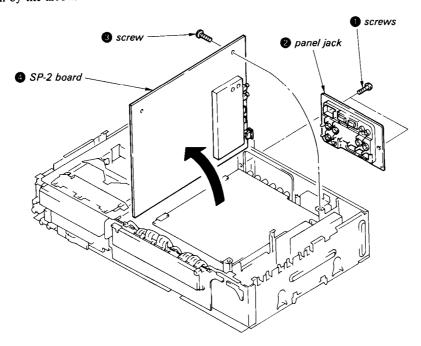
2-5. REMOVAL OF PR-13 BOARD

- 1) Remove the screw 1.
- 2) Take off the four claws 2.
- 3) Remove the preset (A) assembly 3.
- 4) Remove the PR-13 board 4.



2-6. OPENING OF SP-2 BOARD

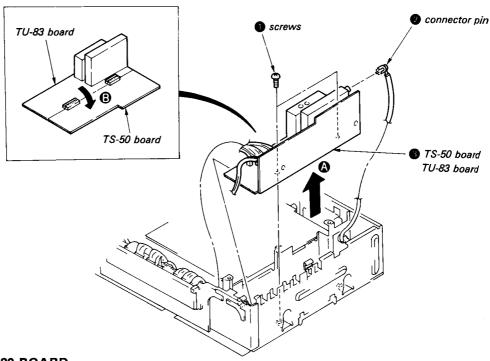
- 1) Refer to the "REMOVAL OF PR-13 BOARD", and remove the preset (A) assembly.
- 2) Remove the two screws 1.
- 3) Remove the panel jack 2.
- 4) Remove the screw 3, and remove the SP-2 board 4 in the direction shown by the arrow.



2-7. REMOVAL OF TS-50, TU-83 BOARD

- 1) Refer to "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws 1.
- 3) Pull out the connector pin 2.

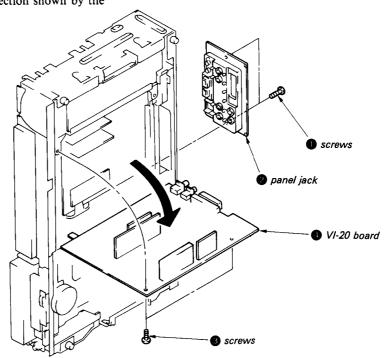
- 4) Remove TS-50, and TU-83 board 3 in the direction shown by the arrow (A).
- **Note:** At this time, take care not to injure the board by scratching it.
- 5) Open the TS-50 board in the direction shown by the arrow **3**.



2-8. OPENING OF VI-20 BOARD

- 1) Remove the two screws 1.
- 2) Remove the panel jack 2.
- 3) Remove the two screws 3.
- 4) Open the VI-20 board 1 in the direction shown by the

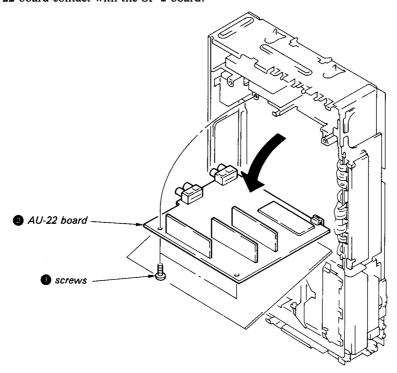
arrow.



2-9. OPENING OF AU-22 BOARD

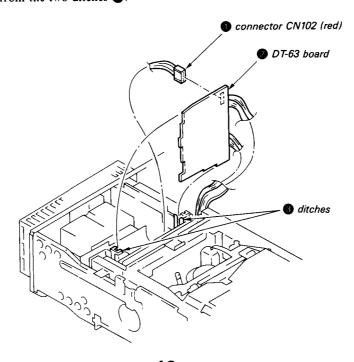
- 1) Refer to "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws ①.
- 3) Open the AU-22 board 2 in the direction shown by the

Note: When opening the AU-22 board, take care not to let the AU-22 board contact with the SP-2 board.



2-10. REMOVAL OF DT-63 BOARD

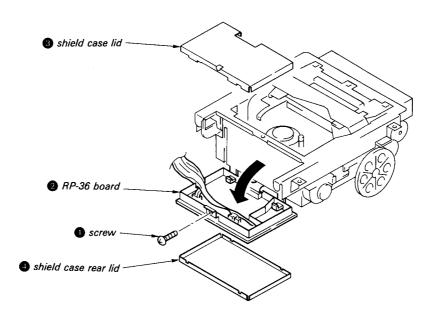
- 1) Pull out the connector (CN102) 1.
- 2) Remove the DT-63 board 2 from the two ditches 3.



2-11. REMOVAL OF RP-36 BOARD

- 1) Refer to the "REMOVAL OF MECHANICAL BLOCK", and remove the mechanical block.
- 2) Remove the screw 1.

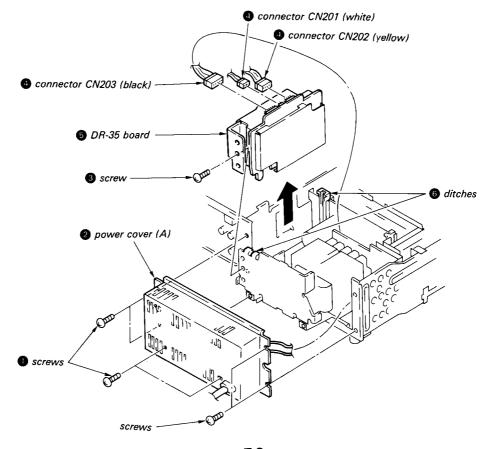
- Open the RP-36 board 2 in the direction shown by the arrow.
- 4) Remove the shield case lid 3 and shield case rear lid 1.



2-12. REMOVAL OF DR-35 BOARD

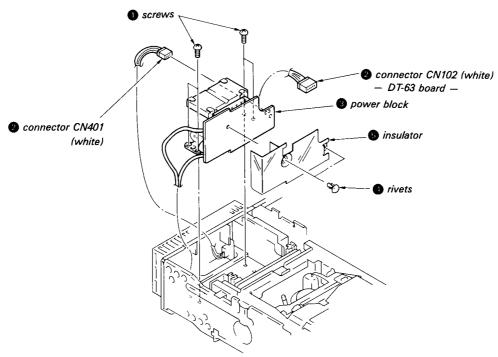
- 1) Remove the six screws ①.
- 2) Remove the power cover **A** 2.
- 3) Remove the screw 3.

- 4) Pull out the three connectors (CN201, CN202, CN203) 1.
- 5) Remove the DR-35 board 5 from the two ditches 6.



2-13. REMOVAL OF POWER BLOCK (DS-16 BOARD)

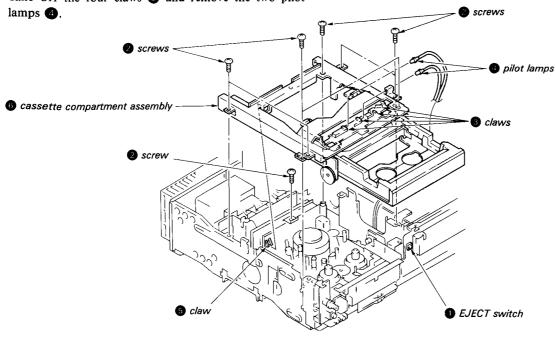
- 1) Refer to the "REMOVAL OF DT-63", and remove the DT-63 board.
- 2) Remove the four screws 1.
- 3) Pull out the two connectors (CN102, CN401) 2.
- 4) Remove the power block (DS-16 board) 3.
- 5) Remove the two rivets 1.
- 6) Remove the insulator 6.



2-14. REMOVAL OF CASSETTE COMPARTMENT **ASSEMBLY**

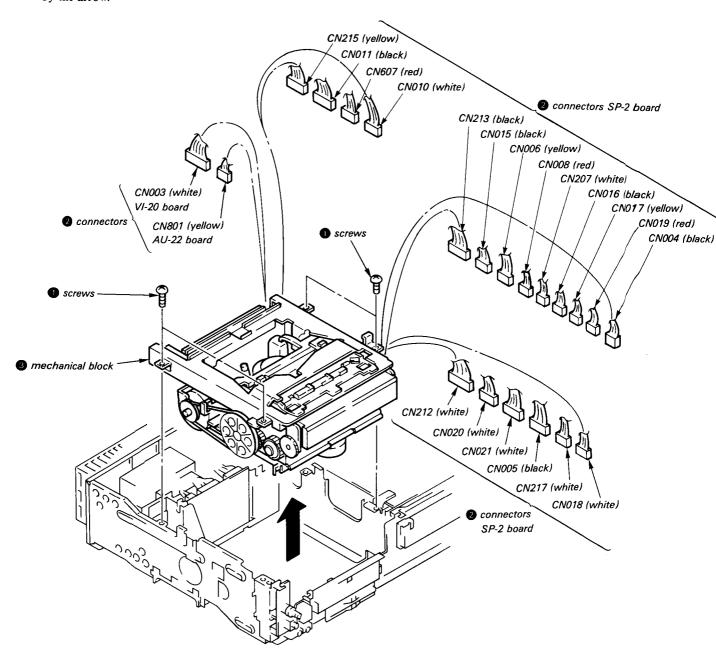
- 1) Turn on the power and push the EJECT switch 1 then put the cassette compartment assembly 6 in the EJECT state.
- 2) Remove the eight screws 2.
- 3) Take off the four claws 3 and remove the two pilot
- 4) Take off the claw 5 and remove the cassette compartment assembly 6.

Note: After performing EJECT state, be sure to turn off the power before separating the assembly.



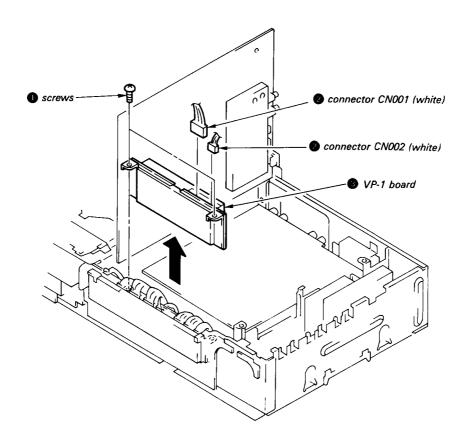
2-15. REMOVAL OF MECHANICAL BLOCK

- 1) Remove the four screws 1.
- Pull out the twenty one connectors (CN212, CN020, CN021, CN005, CN217, CN018, CN213, CN015, CN006, CN008, CN207, CN016, CN017, CN019, CN004, CN215, CN011, CN607, CN010, CN003, CN801)
- 3) Remove the mechanical block 3 in the direction shown by the arrow.

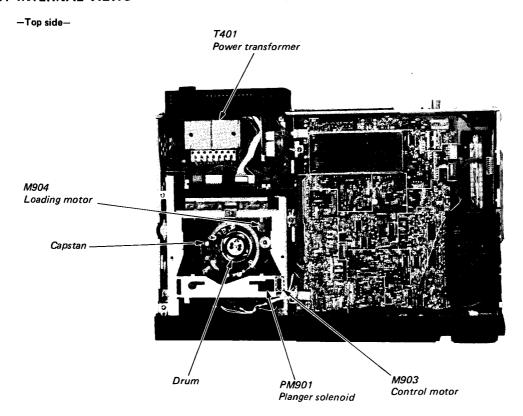


2-16. REMOVAL OF VP-1 BOARD

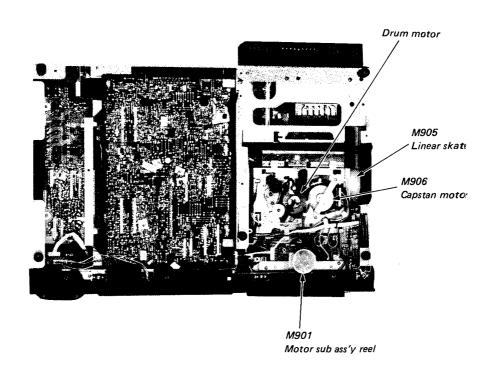
- 1) Refer to the "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws 1.
- 3) Pull out the two connectors (CN001, CN002) 2.
- 4) Remove the VP-1 board 3 in the direction shown by the arrow.



2-17. INTERNAL VIEWS

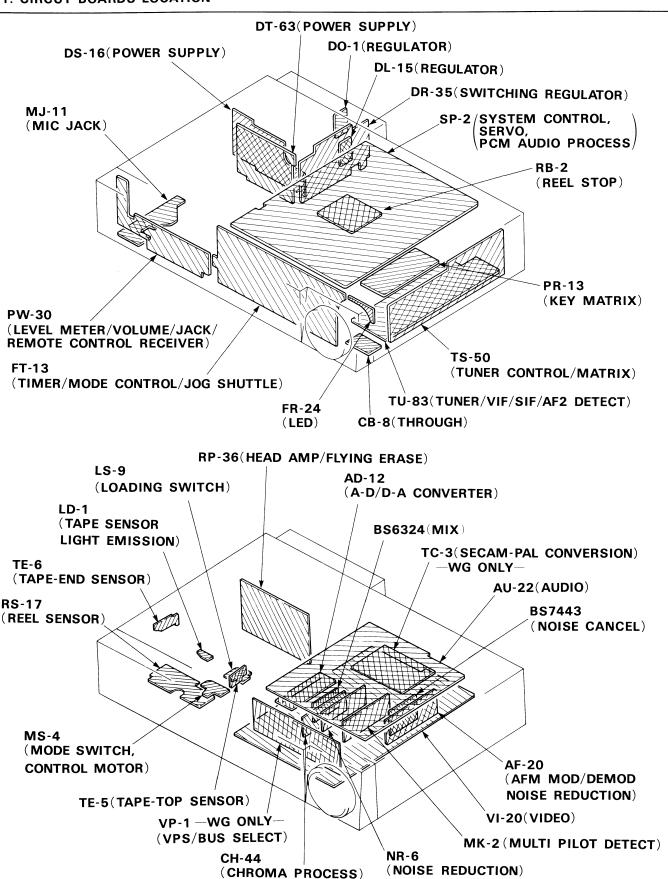


-Bottom side-

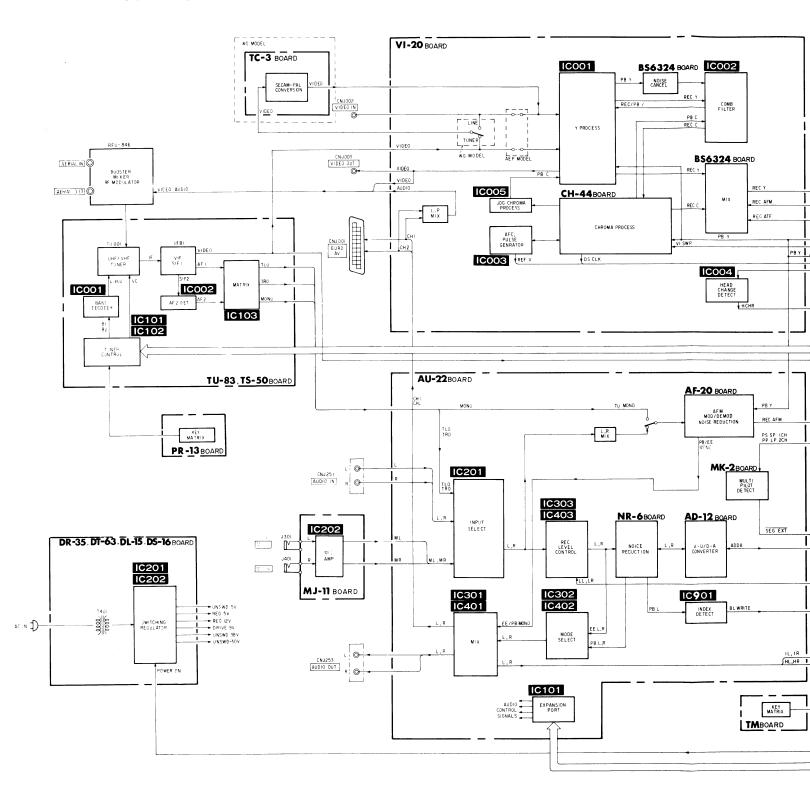


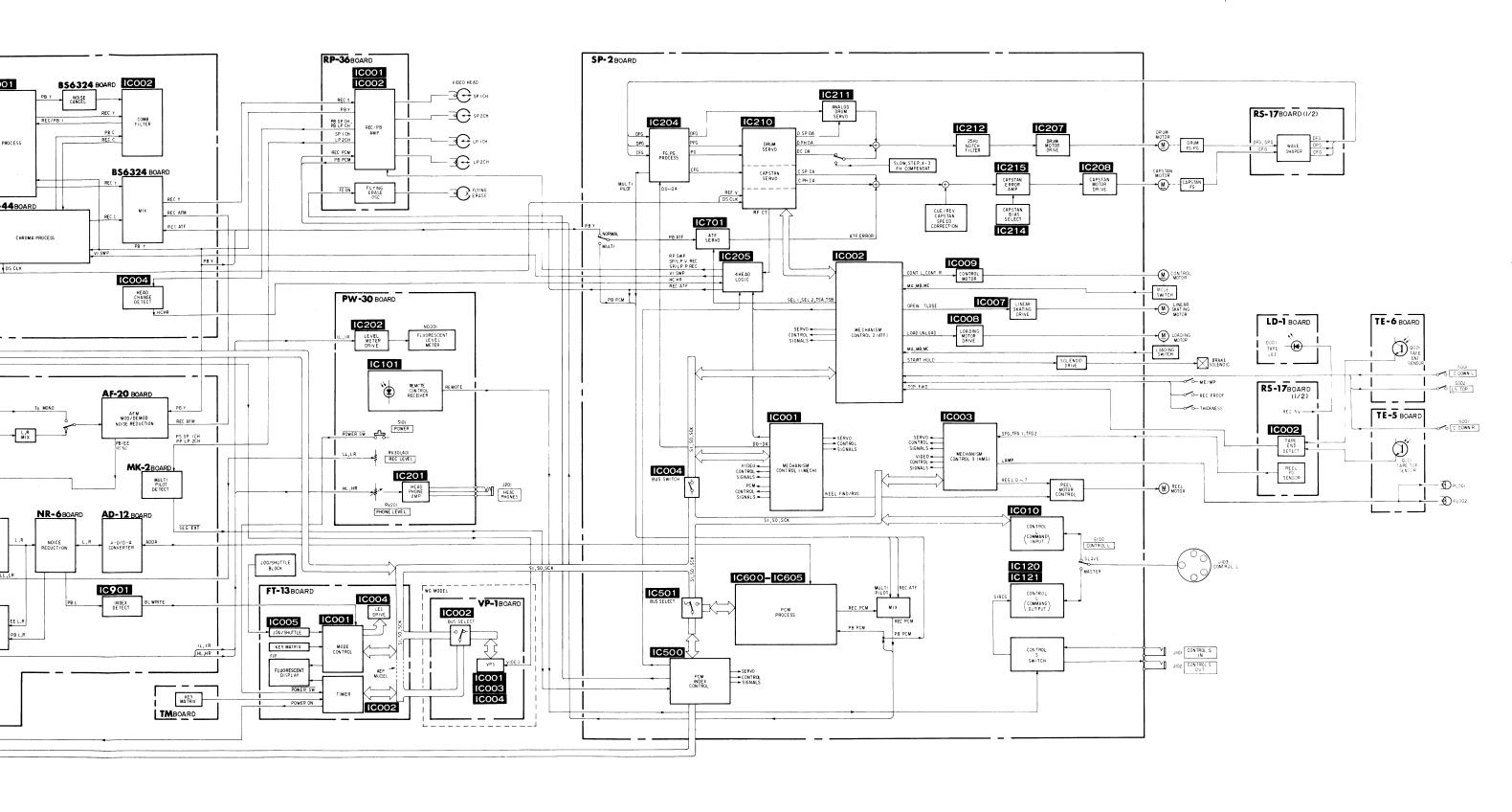
SECTION 3 DIAGRAMS

1. CIRCUT BOARDS LOCATION



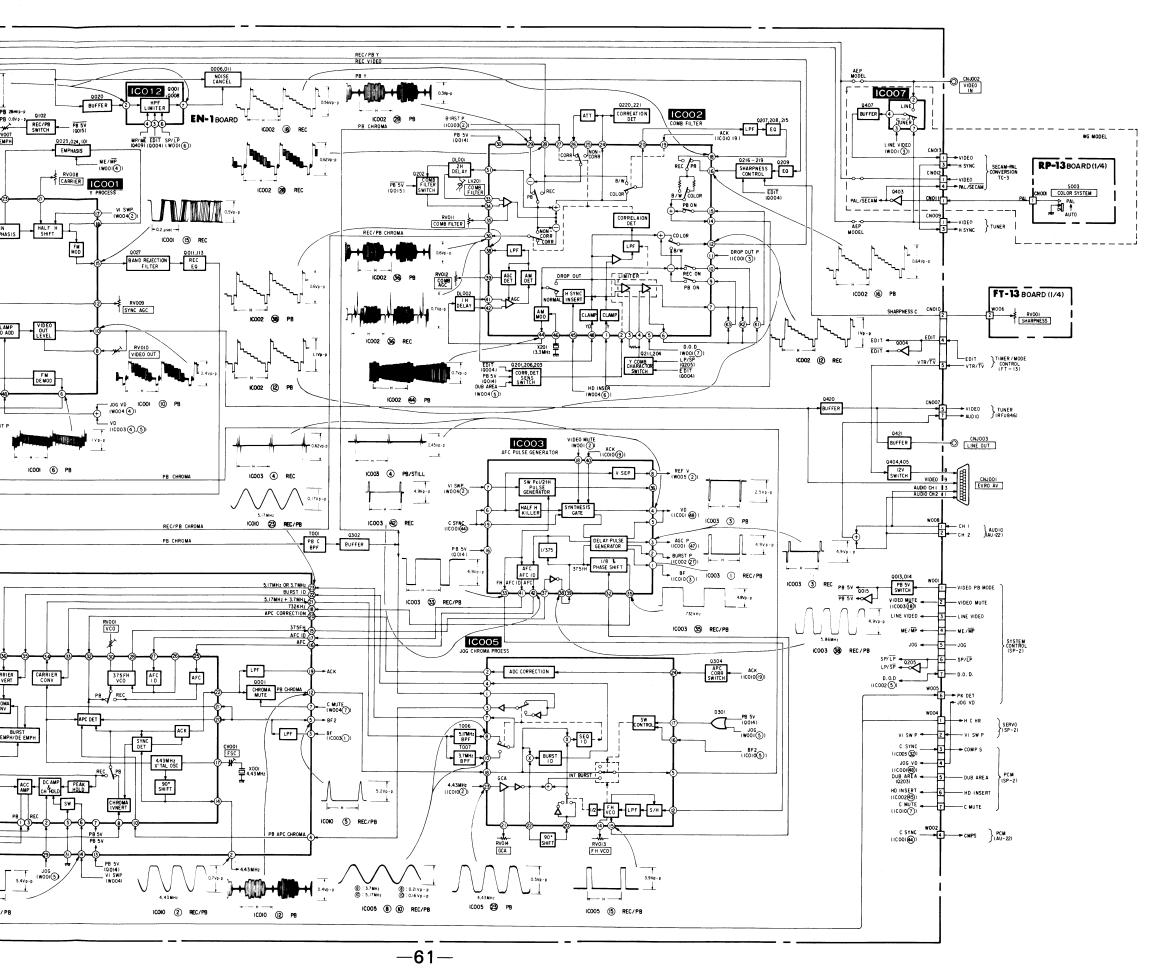
3-2. OVERALL BLOCK DIAGRAM



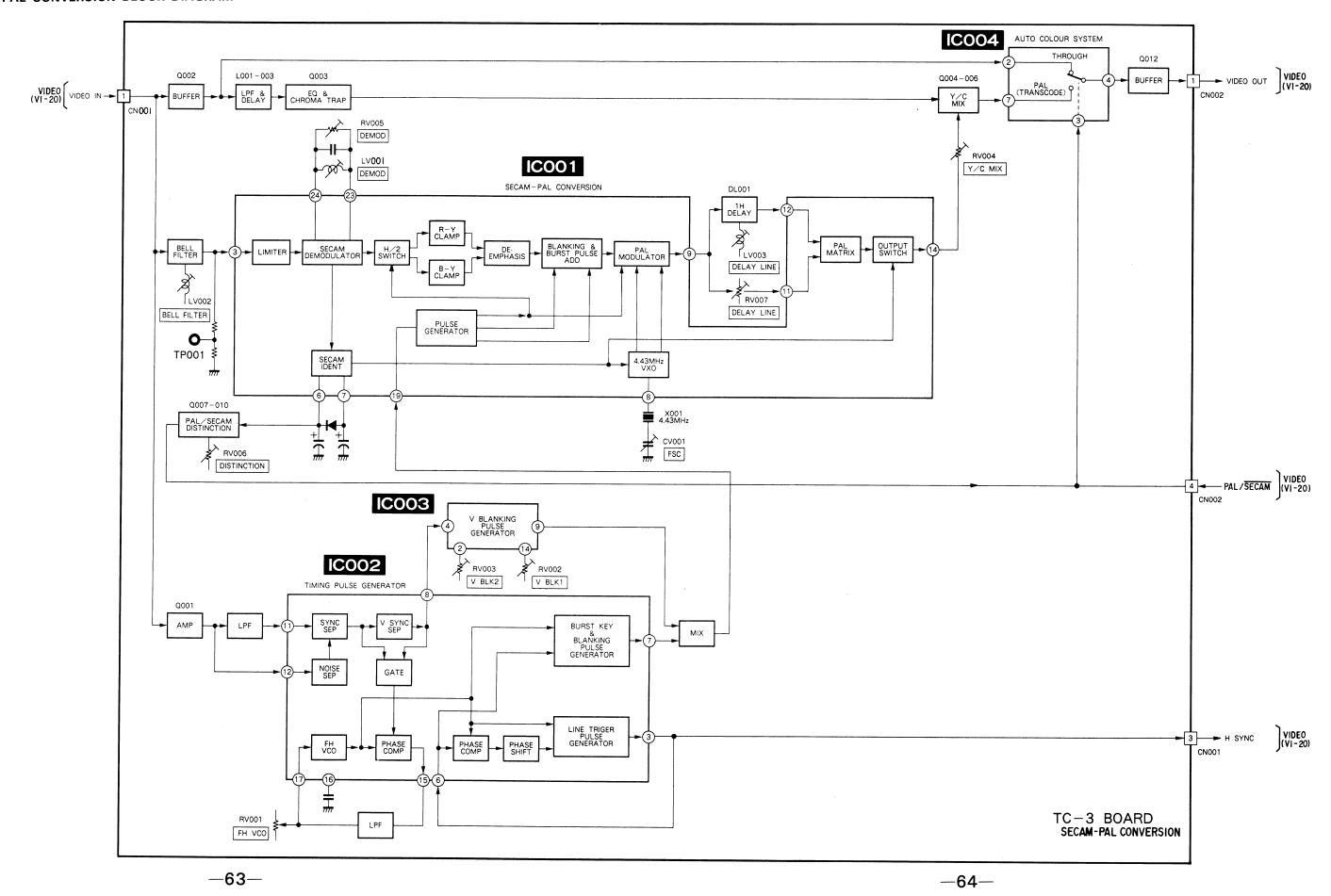


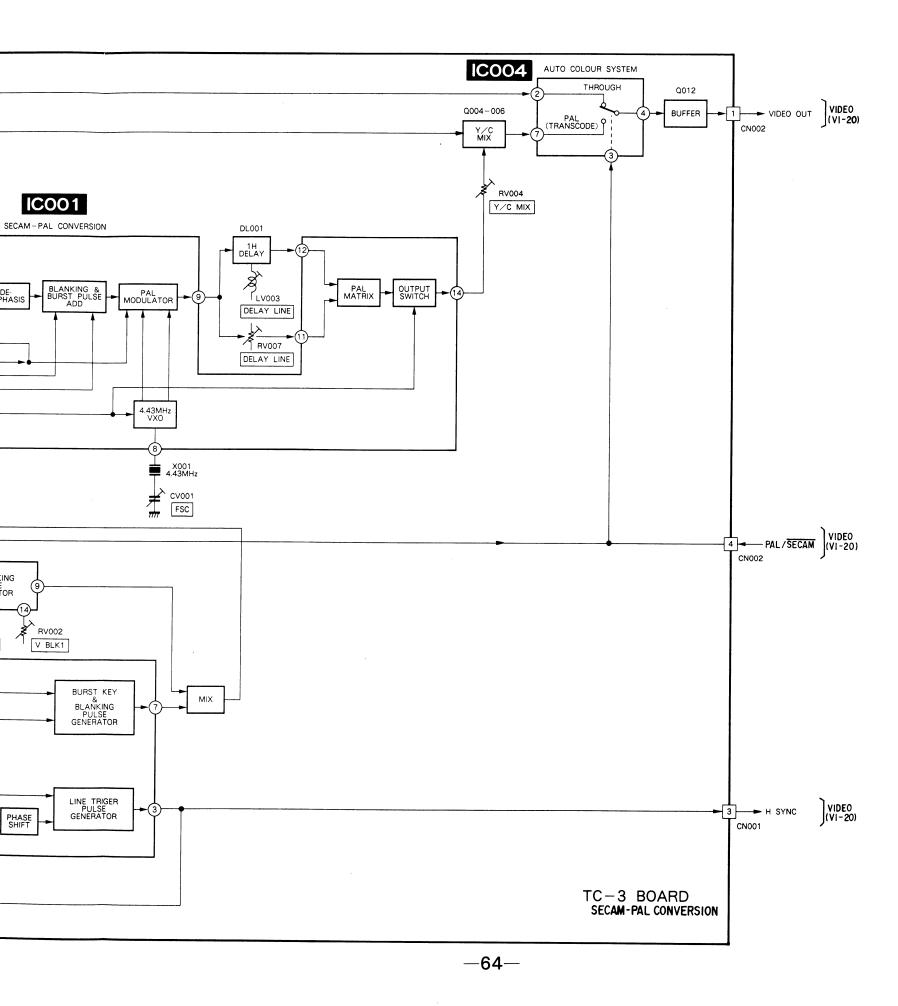
-60-

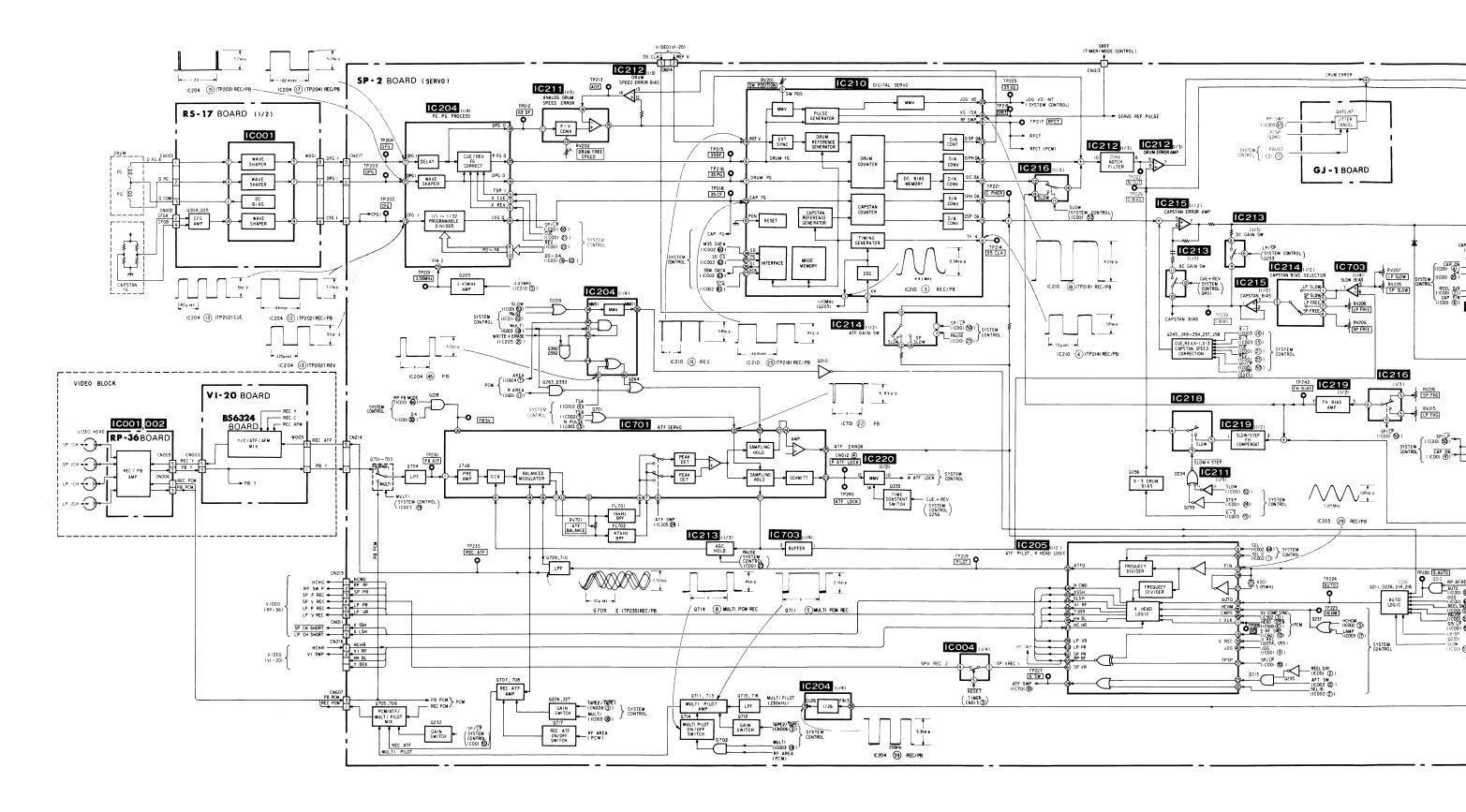
-59-

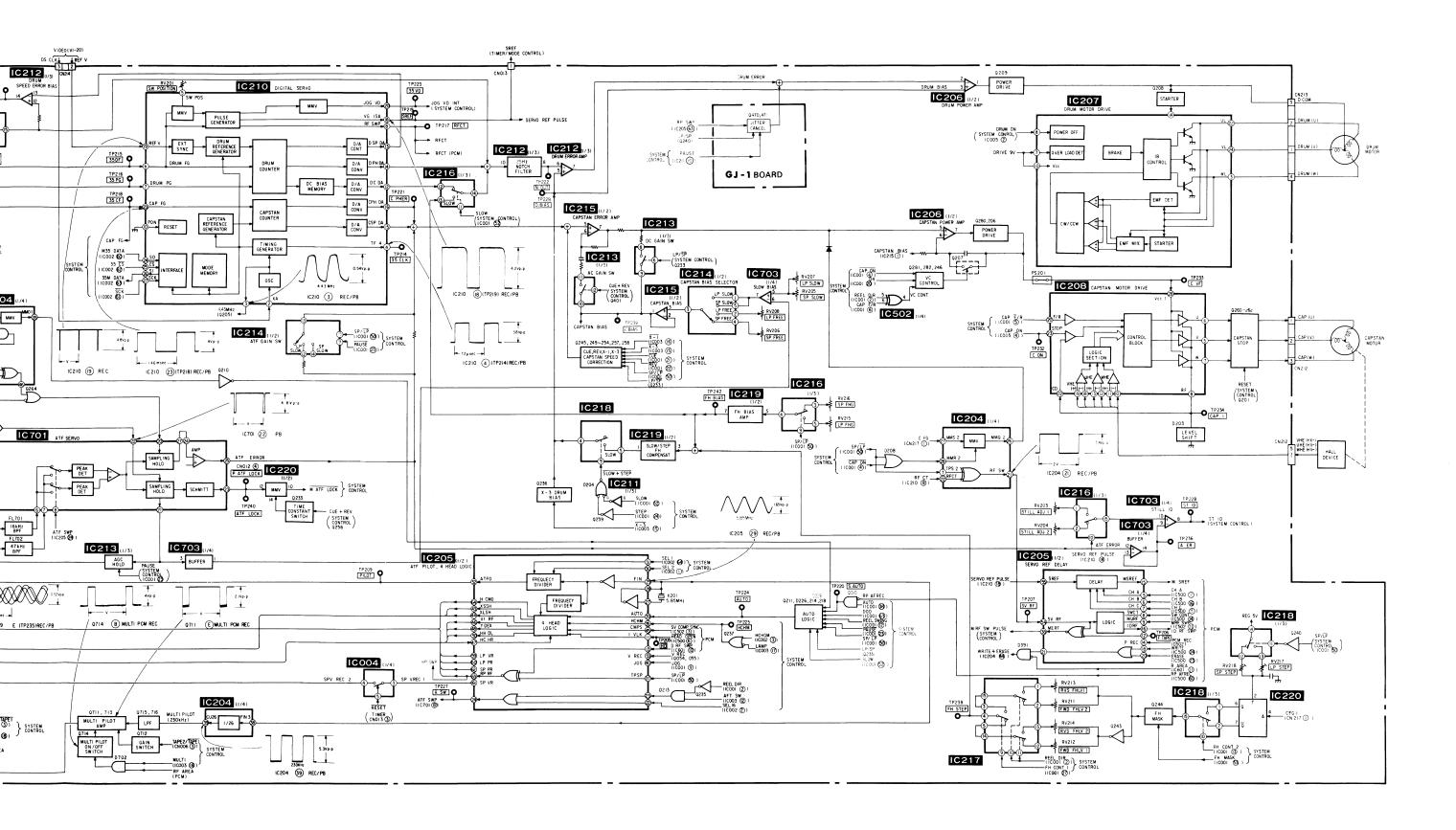


3-4. SECAM/PAL CONVERSION BLOCK DIAGRAM

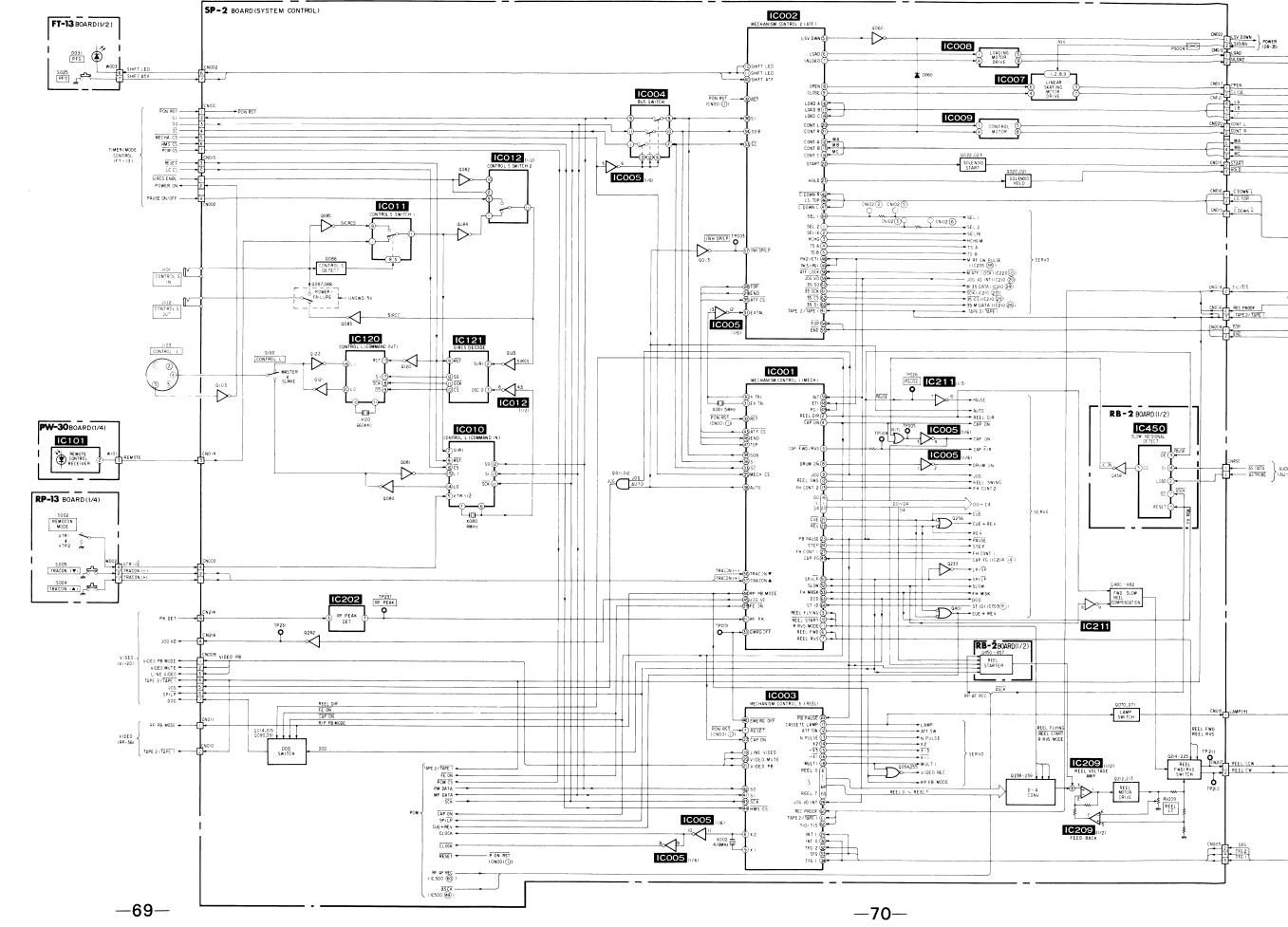


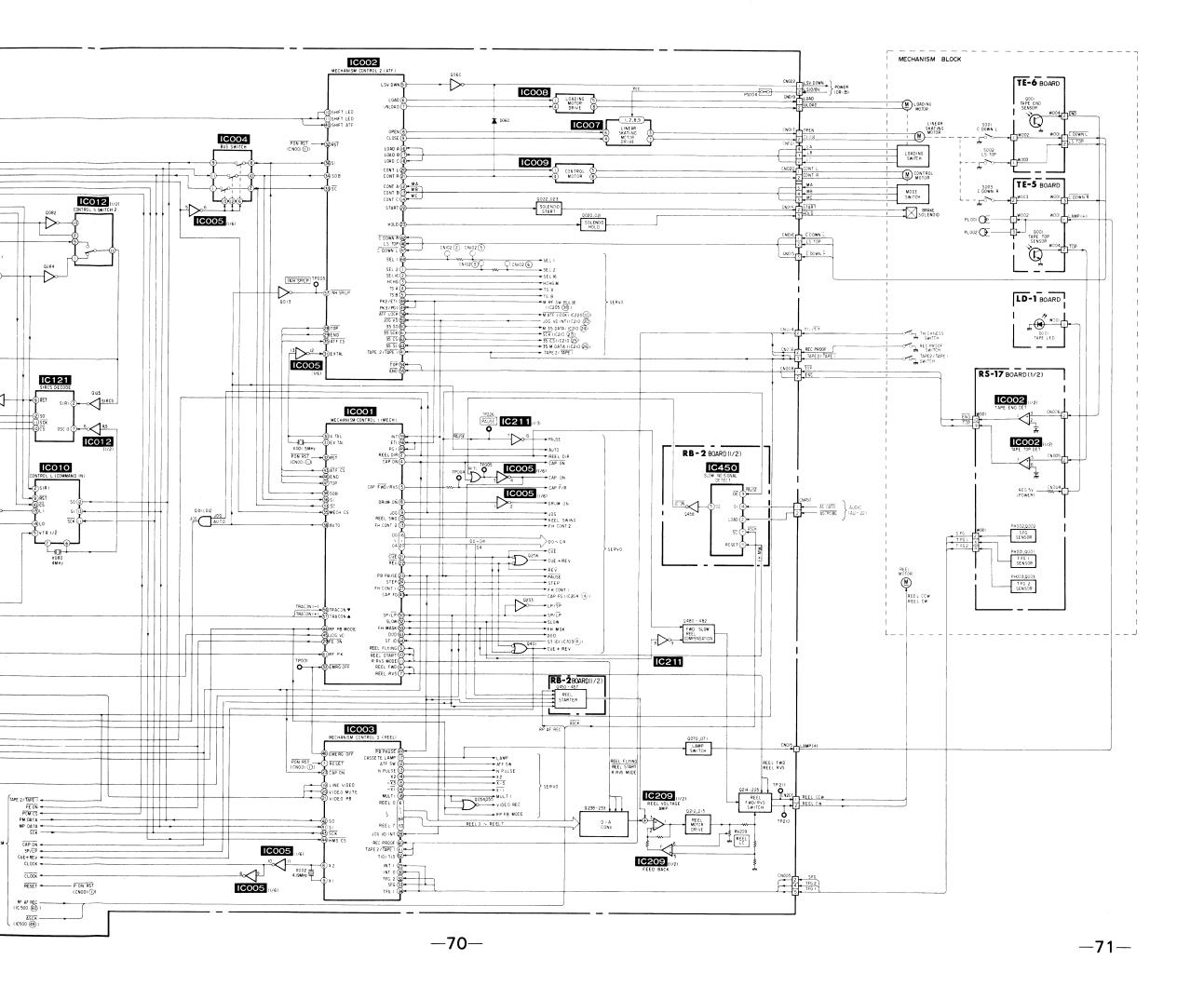






3-6. SYSTEM CONTROL BLOCK DIAGRAM





3-7. SYSTEM CONTROL — REC PAUSE BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	PB	РВ	× 1	_ × 1	× 2	-×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.	_ ''		SLARON	-SEARON	IILO	PAUSE	AI NEO	PAUSE	rb	PAUSE	^ 1	-^1	^2	- ^ 2	^3	- ^ 3	1/10)	-1/10)	COE	NEV
RP PB MODE	0	IC001 44 Pin	Н	Н	н	Н	н	L	L	Н	н	Н	н	Н	н	н	н	Н	Н	н	н	Н	Н
VIDEO REC	0	Q054 collector	L	L	L	L	L	Н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
RP AF REC	0	IC500 60 Pin	L	L	L	L	L	L	L	Н	н	L	L	L	L	L	L	L	L	L	L	L	L
н снg	0	IC002 ③ Pin	*1	*1	*1	*1	*1	*1	*1	*1	*2	*1	*2	*1	*2	*2	*2	*2	*2	*2	*2	*2	*2
M FE ON	0	IC500 ① Pin	Н	Н	Н	Н	н	*3	н	*2	н	Н	н	н	н	Н	н	Н	Н	Н	Н	Н	Н

3-8. SYSTEM CONTROL — VIDEO BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	.PB	PB PAUSE	× 1	_ × 1	× 2	_ × 2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	I/O	Pin No.			11211				PAUSE		PAUSE		PAUSE				_	-		1/10)	-1/10)	-	"-"
VIDEO PB	0	IC003 ②1 Pin	L	L	L	L	L	L	L	Н	Н	Н	н	Н	н	Н	н	н	н	Н	н	Н	Н
VIDEO MUTE	0	IC003 @ Pin	L	L	L	н	н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
LINE VIDEO	0	IC003 (19) Pin	Be cause	ed by input	select																		
JOG	0	IC001 (9) Pin	L	L	L	L	L	L	L	Н	н	Ł	н	н	н	н	н	н	н	н	н	Н	н
DOD	0	IC001 63 Pin	L	L	L	L	L	L	L			L											
TAPE 2/TAPE 1	0	CN009 4 Pin	Be cause	ed by casse	ette																		
SP/LP	0	IC001 50 Pin	Be cause	ed by Tape	Speed Sele	ect																	
JOG VD	0	IC001 45 Pin				NON				Y	ES	NON						YES					

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	PB	PB	× 1	_ × 1	× 2	_ × 2	× 9	× 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	I/O	Pin No.	0.0.	••	11277	CEANON	- OLAHOH	1120	PAUSE	AI IILO	PAUSE		PAUSE	_ ^ •	- ^ •	^ •	- ^ L	~ •	- ~ 3	1/10)	1/10) -1/10)	OOL	11.24
CAP ON	0	IC001 4 Pin	н	Н	н	L	L	L	Н	L	н	L	н	L	L	L	L	L	L	*1	*1	L	L
CAP ON	0	IC005 4 Pin	L	L	L	Н	Н	Н	L	н	L	Н	L	н	н	Н	Н	Н	н	*1	*1	Н	Н
CAP FWD/RVS	0	IC001 (5) Pin	L	L	L	L	н	L	L	L	L	L	L	L	Н	L	Н	L	н	*1	*1	L	Н
D0-D4	0	IC001 16 ~ 20 Pin	"1"	"1"	"1"	*2	*2	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"2"	"2"	"9"	"7"	"1"	"1"	"9"	"7"
CUE	0	IC001 ② Pin	Н	Н	Н	н	н	Н	н	н	Н	Н	Н	н	Н	Н	Н	Н	Н	Н	Н	L	Н
REV	0	IC001 22 Pin	Н	Н	Н	н	н	Н	н	н	н	Н	н	Н	н	н	Н	Н	Н	Н	Н	Н	L
PB PAUSE	0	IC001 3 Pin	Н	Н	н	Н	Н	Н	Н	н	L	Н	L	н	н	н	Н	Н	Н	L	L	Н	Н
	0	IC003 16 Pin	Н	Н	Н	Н	Н	Н	Н	Н	н	Н	Н	Н	L	н	Н	Н	н	Н	Н	Н	Н
×3	0	IC003 [®] Pin	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	н	н	L	Н	Н	Н	н	Н	Н

D4 MSB D0 LSB (decimal notation)

^{*1} Be caused by Tape speed select
*2 Output pulse
*3 At "L" during the NORMAL or at output pulse during the MULTI

^{*1} Output pulse *2 PAL "18" — "17" NTSC "25" — "24"

3-10. SYSTEM CONTROL — DRUM MOTOR INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC PAUSE	РВ	РВ	×1	-×1	× 2	_×2	× 9	-×9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	3.0.	••	11200	DEARTON	- OLAHOII	20	PAUSE	A. 1120	PAUSE		PAUSE							1/10)	—1/10)		
DRUM ON	0	IC001 ® Pin	Н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
STEP	0	IC001 24 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
FH CONT1	0	IC001 ② Pin	L	L	L _.	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
FH CONT2	0	IC001 (3) Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
SLOW	0	IC001 52 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Н	Н	L	L
FH MASK	0	IC001 53 Pin	Н	Н	Н	н	н	Н	н	Н	н	Н	Н	Н	Н	Н	Н	Н	Н	*1	*1	Н	Н

^{*1} Output pulse

3-11. SYSTEM CONTROL - REEL MOTOR INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC	PB	PB	× 1	× 1	× 2	-×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.	''		027111011	02,		PAUSE	0	PAUSE		PAUSE							1/10)	—1/10)		
REEL FWD	0	IC001 ® Pin	L	н	L	Н	L	Н	L	Н	L	н	L	н	L	н	L	Н	L	*1	*1	Н	L
REEL RVS	0	IC001 7 Pin	L	L	Н	L	Н	L	L	L	L	L	L	L	н	L	Н	L	Н	*1	*1	L	Н
DOD	0	IC001 63 Pin	H/L	L	Н	L	н	L	н	Н	L	L	H/L	L	Н	L	н	н	н	L	Н	Н	н
REEL DIR	0	IC001 ② Pin	H/L	L	Н	L	Н	L	н	L	L	L	H/L	L	н	L	н	L	Н	L	Н	L	Н
REEL FLYING	О	IC001 ③ Pin	L	L	Ł	Ł	L	L	L	L	L	L	L	- L	L	L	L	L	L	L	L	L	L
REEL START	0	IC001 10 Pin	Н	н	Н	н	Н	Н	Н	н	н	Н	Н	Н	Н	н	н	н	Н	н	Н	Н	Н
R RVS MODE	0	IC001 (1) Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
REEL SWG	0	IC001 12 Pin	L	L	L	L	L	Ł	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
REEL 0~7	О	IC003 ① ~ ⑥, ⑥, ⑥ Pin	"70"	"96"	"96"	"A6"	"9C"	"54"	"54"	"54"	"54"	"54"	"70"	"54"	*2	"70"	*2	*3	*3	"70"	*4	*3	*3

REEL 7 MSB REEL 0 LSB (BCD Code)

3-12. SYSTEM CONTROL — ATF SERVO BLOCK INTERFACE

—75—

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC	РВ	PB PAUSE	× 1	× 1	× 2	_×2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.							PAUSE		PAUSE		PAUSE							1/10)	—1/10)		
ATF SW	0	IC003 12 Pin	L	L	L	L	L	L	L	L	*1	L	*1	L	L	L	L	L	L	*1	*1	L	L
SEL16	0	IC002 ② Pin	L	L	L	L	L	*2	L	*2	L	*2	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
TSA	0	IC002 4 Pin	L	L	L	н	н	L	L	*2	L	*2	L	*2	*2	*2	*2	L	L	L	L	L	L
TSB	O	IC002 (5) Pin	L	L	L	L	L	L	L	*2	L	*2	L	*2	*2	*2	*2	L	L	L	L	L	L
MULTI	0	IC003 18 Pin	Be cause	ed by NORI	MAL/MUL	TI select swit	ch and Tape	state															
N PULSE	0	IC003 13 Pin	L	L	L	L	L	L	L	L	*1	L	*1	L	L	L	L	L	L	*1	*1	L	L
TAPE 2/TAPE 1	0	0227 B	Be cause	ed by CAS	SETTE																		
RP PB MODE	0	IC001 44 Pin	Н	Н	Н	н	н	L	L	Н	н	Н	н	Н	н	Н	Н	н	н	Н	н	Н	Н
SEL 1	0	IC002 64 Pin	Н	Н	Н	Н	Н	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
SEL 2	0	IC002 ① Pin	Н	Н	Н	Н	Н	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
M RF SW PULSE	1	IC002 48, 49 Pin	H/L	****			FIELD syncl	hronized p	ulse														
JOG VD INT	ı	IC001, 002 (9) Pin	L				Inpu	t pulse	-				- -										

—76—

^{*1} Output pulse
*2 Be caused by NTSC/PAL, REMAIN
*3 Be caused by NTSC/PAL, SP/LP
*4 Be caused by NTSC/PAL

^{*1} Output pulse *2 Be caused by ATF sequence

3-13. SYSTEM CONTROL — STILL BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	PB	PB PAUSE	×1	_×1	× 2	- × 2	× 9	_×9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.							PAUSE		PAUSE		PAUSE							1/10)	—1/10)		
RF PK	ı	IC001 6 Pin											Unsettled										
STID	ı	IC001 64 Pin											Unsettled										

3-14. SYSTEM CONTROL — HEAD CHANGE BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	РВ	РВ	×1	_ × 1	× 2	-×2	× 9	- × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.			OZANON	o LANOII	20	PAUSE	A. 1.20	PAUSE		PAUSE						_	1/10)	—1/10)		
AUTO	0	IC001 38 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	*1	*1	L	L
LAMP	0	IC003 ① Pin	Н	Н	Н	Н	Н	Н	Н	н	Н	Н	Н	Н	н	Н	Н	Н	Н	Н	Н	Н	Н
SP/LP	0	IC001 50 Pin	Be caus	ed by speed	d serect																		

^{*1} Be caused by SP/LP

3-15. SYSTEM CONTROL — AND OTHERS BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	PB	PB PAUSE	× 1	-×1	× 2	× 2	× 9	- × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	0.0.						PAUSE		PAUSE		PAUSE							1/10)	—1/10)		
M ATF LOCK	0	IC002 66 Pin											Unsettled										
CAP FG	1	IC001 40 Pin		Unsettled		*1	*1	*1	Unsettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
JOG	0	IC001 @ Pin	L	L	L	L	L	L	L	Н	Н	L	н	Н	Н	Н	Н	н	Н	Н	н	Н	Н

^{*1} Input pulse

3-16. SYSTEM CONTROL - AFM AUDIO BLOCK INTERFACE

	MODE		STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC PAUSE	РВ	PB PAUSE	×1	× 1	× 2	- × 2	× 9	_ × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	1/0	Pin No.	3101						PAUSE		PAUSE		FAUGE							1/10)	-1/10)		
IN SEL A	0	IC101 ⑤ Pin																					
IN SEL B	0	IC101 ⑥ Pin	Be caus	ed by input	select (TUN	NER/LINE/S	SIMUL and y	es or no of	microphone	e input)													
AF SEL	0	IC101 26 Pin																					
OUT SEL A	0	IC101 ③ Pin		Be caused by output select (receive a signal or STEREO/MONO/BILINGAL of playback ID and monitor switch)																			
OUT SEL B	0	IC101 ② Pin	Be caus																				
OUT SEL C	0	IC101 ① Pin																					
SP/LP	О	IC101 ② Pin	Be caus	Be caused by speed select															,				
AUDIO MUTE	0	IC101 4 Pin	Н	н	Н	L	L	Н	Н	н	Н	Н	L	Н	Н	Н	н	Н	н	Н	н	Н	Н
AF PB/REC	0	IC101 25 Pin	L	L	L	н	н	L	L		L	н	н	н	Н	Н	Н	Н	н	н	Н	Н	Н
REC MUTE	0	IC101 24 Pin	Н	н	н	Н	н	L	н	L	Н	Н	Н	н	Н	Н	Н	Н	н	Н	Н	Н	н
AFM MUTE 2	0	IC101 ② Pin	*1	*1	*1	н	н	*1	*1	Н	Н	*2	н	н	н	*2	Н	Н	н	Н	н	Н	Н
AFM MUTE 1	О	IC101 ② Pin	*1	*1	*1	Н	Н	*1	*1	Н	Н	*2	Н	Н	н	*2	Н	Н	Н	н	Н	Н	н
×2	0	IC101 @ Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	Н	L	L	L	L	L	L	L

^{*1} Be caused by on the air classify of STEREO/MONO/BILINGUAL and monitor switch *2 Be caused by Tape ID and monitor switch

3-17. SYSTEM CONTROL — PCM AUDIO BLOCK INTERFACE

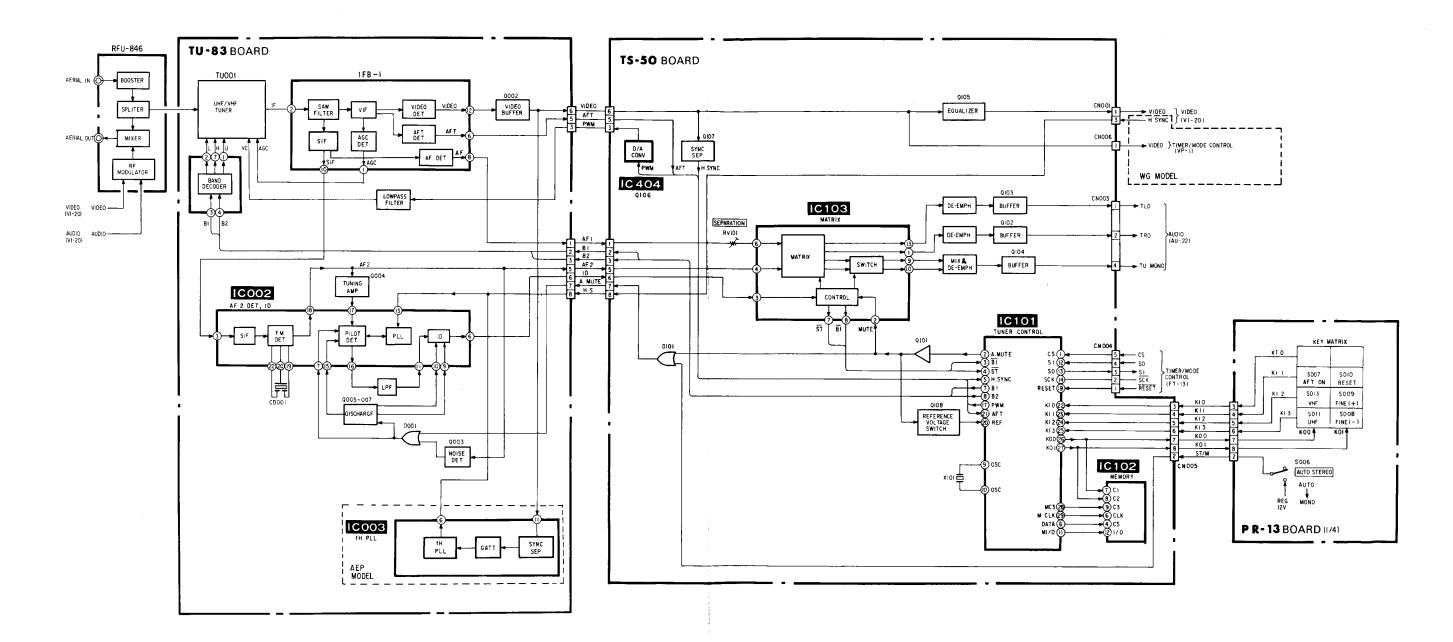
	MODE		STOP	FF	REW	SEARCH	H -SEARCH	REC	REC PAUSE	AF REC	AF REC PAUSE	PB	PB PAUSE	× 1	_ ×1	× 2	-×2	× 9	- × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
SIGNAL	SIGNAL I/O	Pin No.	0.0.		11277				PAUSE		PAUSE	2.7.2	PAUSE							1/10)	—1/10)		
PCM ACT	1	IC500 46 Pin	L	L	L	Unsettled		Н	.L	H L Unsettled													
AF REC	0	IC500 59 Pin	L	L	L	L	L	L	L	н	L	L	L	L	L	L	L	L	L	L	L	L	L
PCM PB/REC	0	IC500 52 Pin	н	H	Н	н	н	L	н	L	н	Н	н	н	н	н	Н	н	н	Н	н	Н	н
LOCK	0	IC500 ② Pin	L	L	L	Н	н	Н	L	н	н	н	н	н	н	н	н	н	н	н	н	н	Н
FOH	0	IC500 53 Pin	н	н	Н	L	н	Н	Н	Н	н	Н	Н	н	н	н	н	н	Н	Н	Н	Н	н
FOL	0	IC500 54 Pin	L	L	L	L	н	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

3-18. SYSTEM CONTROL — MD BLOCK INTERFACE

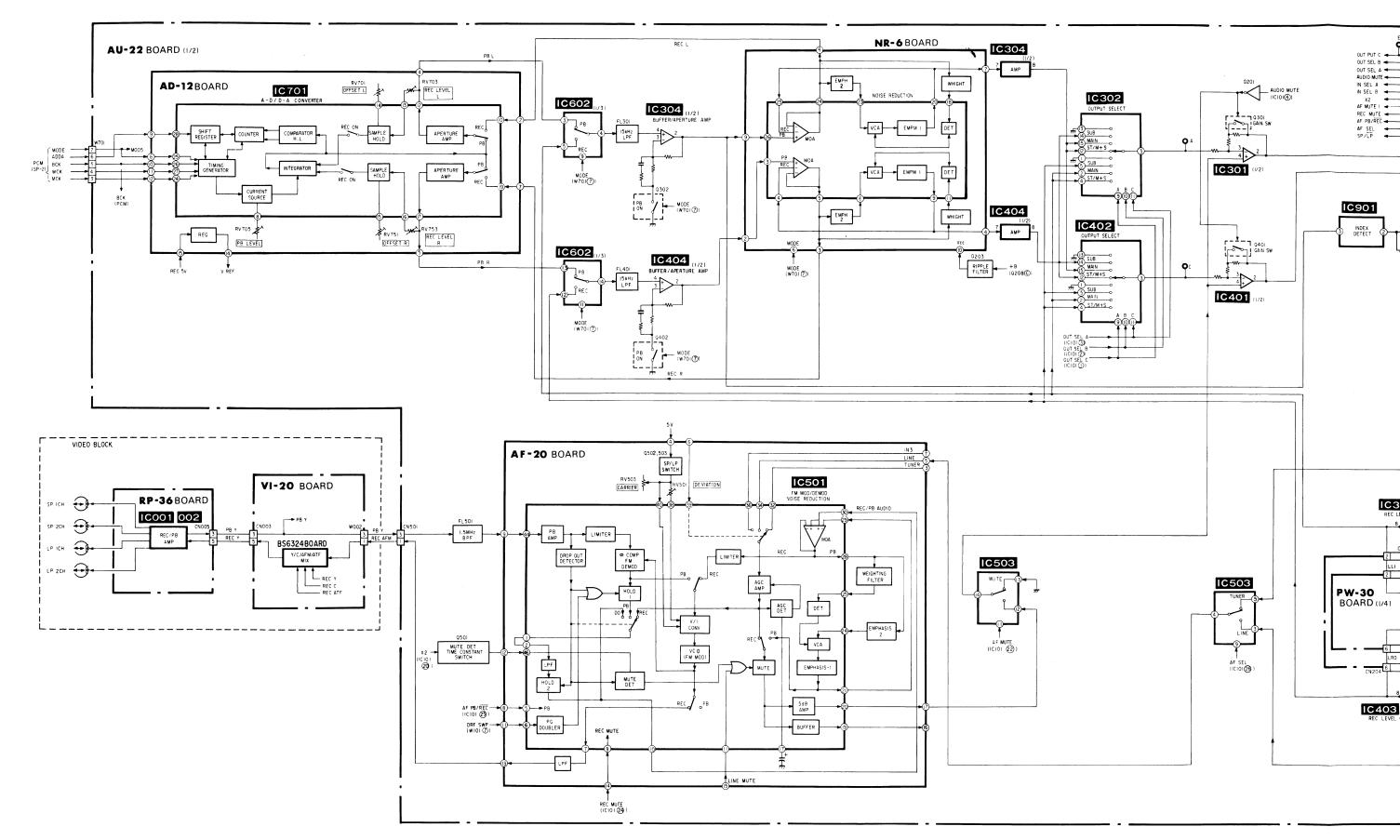
SIGNAL	MODE	HOL — IVID E	STOP	FF	REW	SEARCH	-SEARCH	REC	REC	AF REC	AF REC PAUSE	PB	РВ	×1	-×1	× 2	-×2	× 9	- × 9	SLOW (1/5,	SLOW (-1/5,	CUE	REV
	1/0	Pin No.	0.01	••		02,411011			PAUSE		PAUSE		PAUSE							1/10)	—1/10)		
LAMP	0	IC003 ① Pin	Н	Н	н	Н	н	Н	н	Н	н	Н	Н	Н	Н	Н	Н	Н	н	н	Н	Н	н
CDOWNL	ı	IC002 4 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CDOWNR	ı	IC002 42 Pin	L	L	L	L	Ł	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
LSTOP	1	IC002 46 Pin	Н	Н	Н	Н	н	н	н	н	н	н	Н	Н	н	н	Н	Н	н	н	н	Н	Н
OPEN	0	IC003 ® Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CLOSE	0	IC002 9 Pin	L	L	L	L	L	L	L	L	L	Ł	L	L	L	L	L	L	L	L	L	L	L
LOAD	0	IC002 6 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
UNLOAD	0	IC002 7 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
LA~LC	ı	IC003 ® ① ® Pin	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"	"3"
CONTL	0	IC002 @ Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CONTR	0	IC002 ②1 Pin	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
MA~MC	ı	IC002 13 13 14 Pin	"3"	"6"	"6"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"	"1"
START	0	IC002 ② Pin	Н	н	Н	Н	н	Н	н	н	н	Н	н	Н	Н	Н	н	Н	Н	Н	н	Н	н
HOLD	0	IC002 22 Pin	н	L	L	н	н	Н	н	н	н	Н	н	Н	н	Н	н	Н	н	н	н	Н	н
RECPROOF	1	IC003 @ Pin			•																		
TAPE 2/TAPE 1	ı	IC003 61 Pin	Be cause	d be Tape	state																		
T10/T13	1	IC003 62 Pin																		•			
TFG1	1	IC003 39 34 Pin	Unsettled	*1	*1	*1	*1	*1	Unsettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
TFG2	ı	IC003 32 Pin	Unsettled	*1	*1	*1	*1	*1	Unstettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
TOP	ı	IC002 54 Pin	Н	Н	н	н	н	Н	Н	Н	Н	Н	н	Н	Н	Н	Н	Н	н	н	н	Н	Н
END	ı	IC002 55 Pin	*2	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
SFG	ı	IC003 29 33 Pin	Unsettled	*1	*1	*1	*1	*1	Unsettled	*1	Unsettled	*1	Unsettled	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1

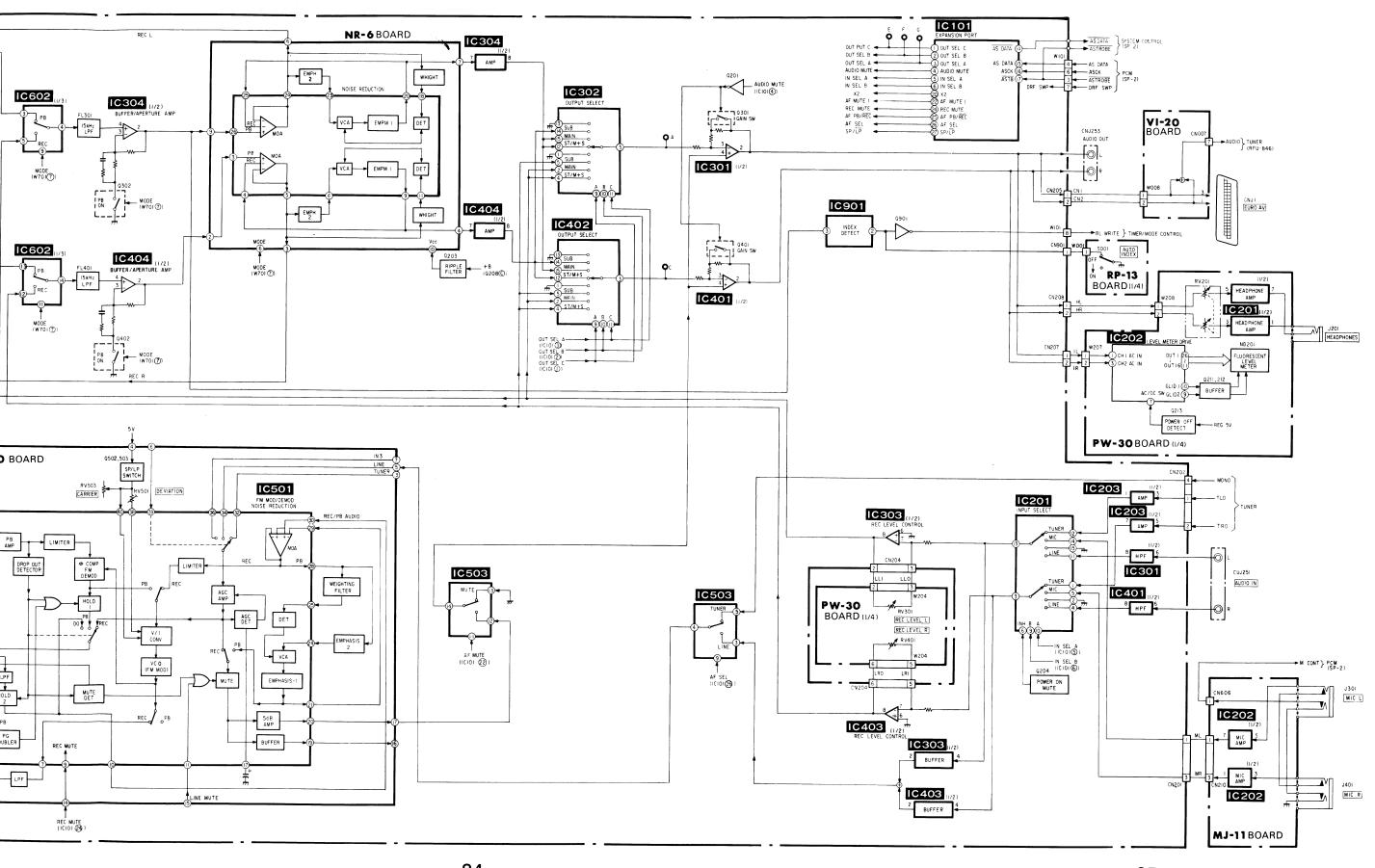
^{*1} The pulse is participate of reel rotations *2 Normal...at "H", but at "L" during the Tape end

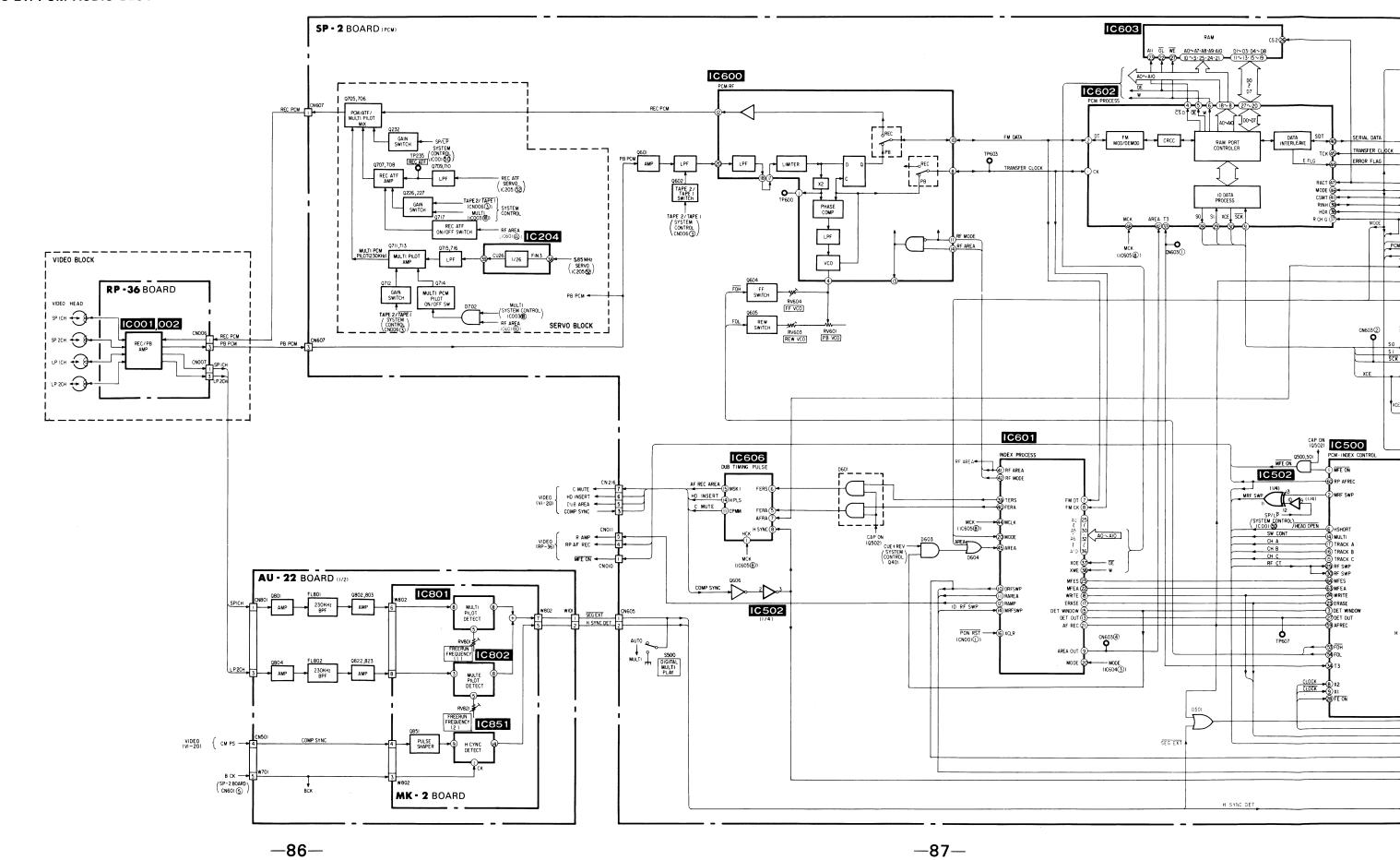
3-19. TUNER BLOCK DIAGRAM

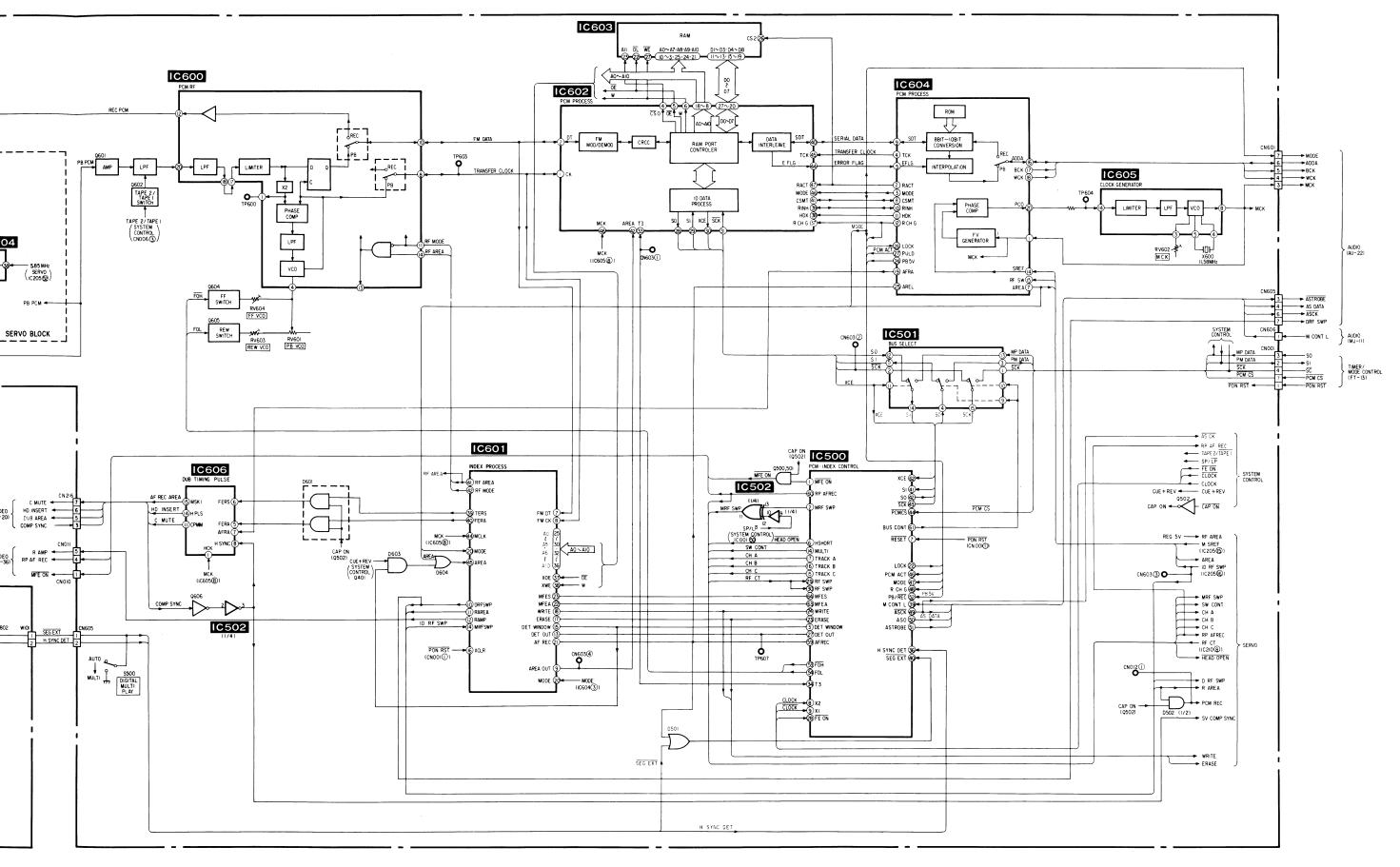


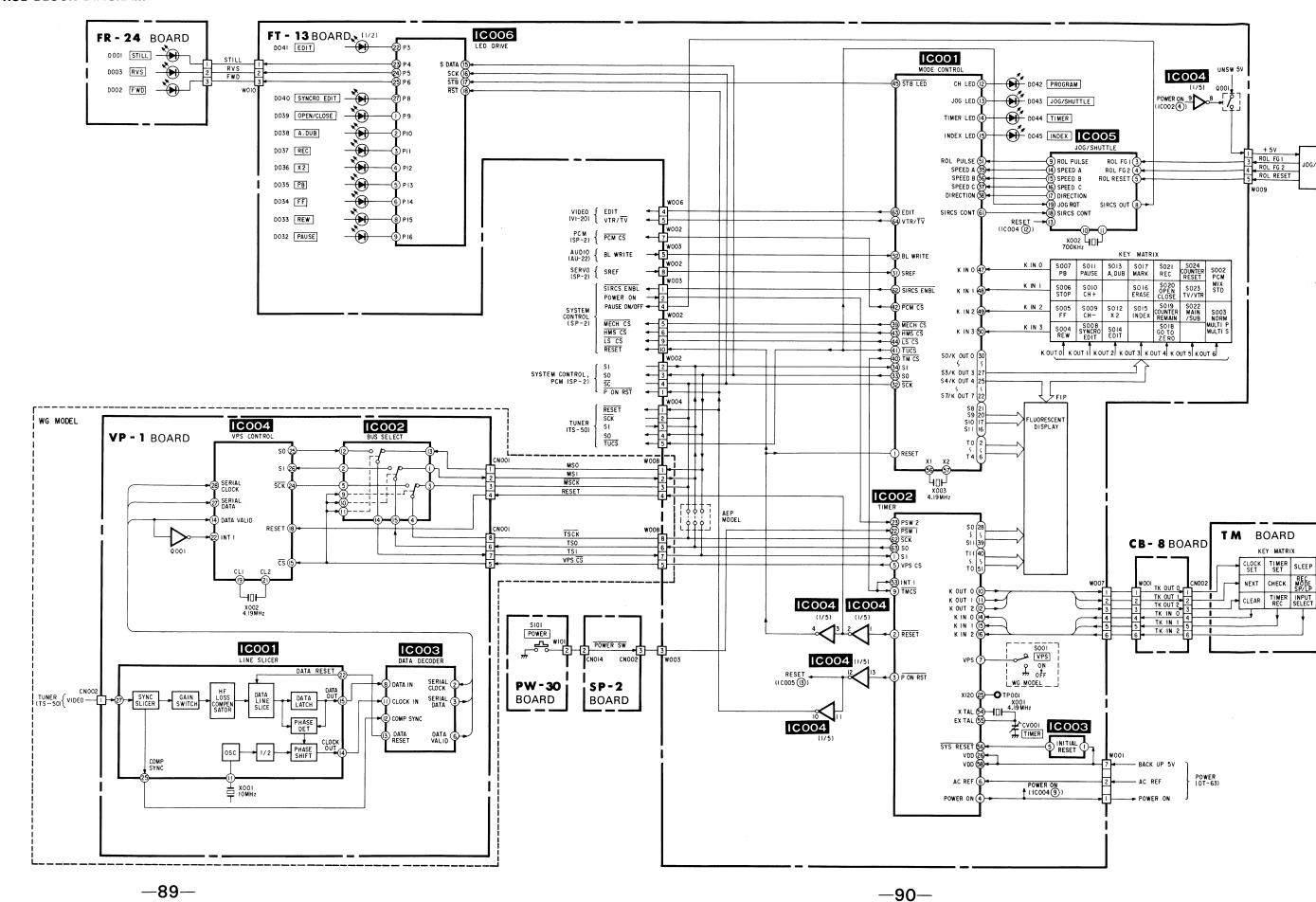
3-20. AUDIO BLOCK DIAGRAM

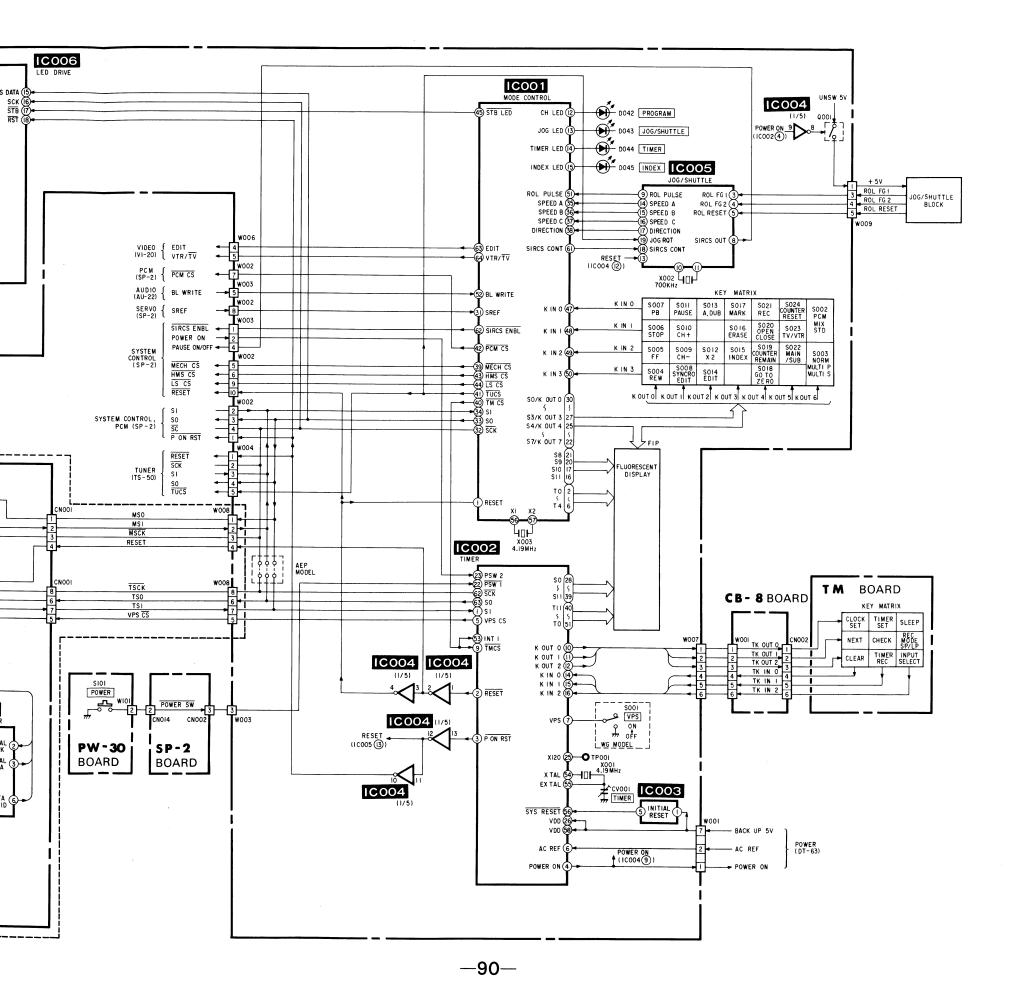




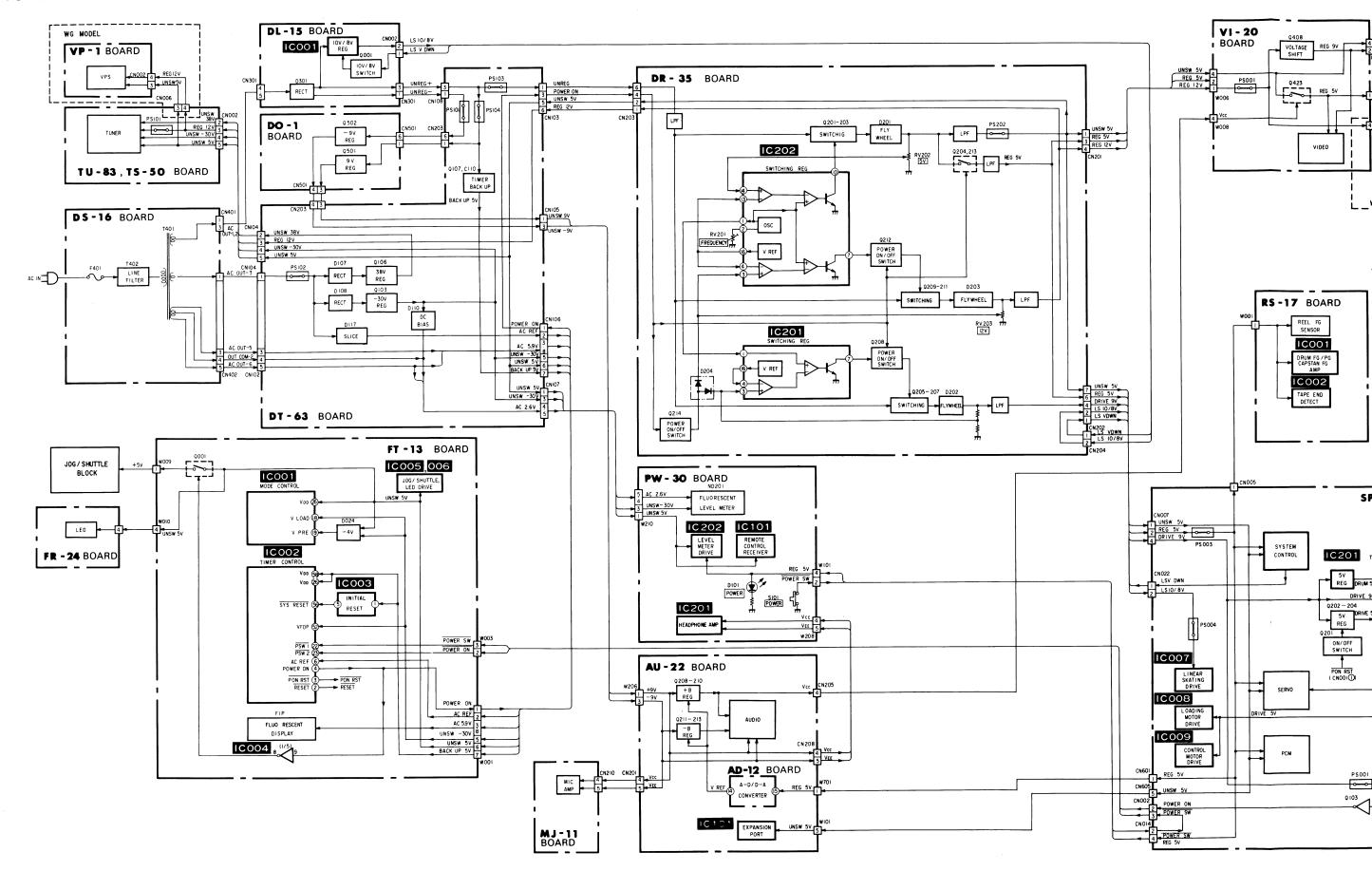


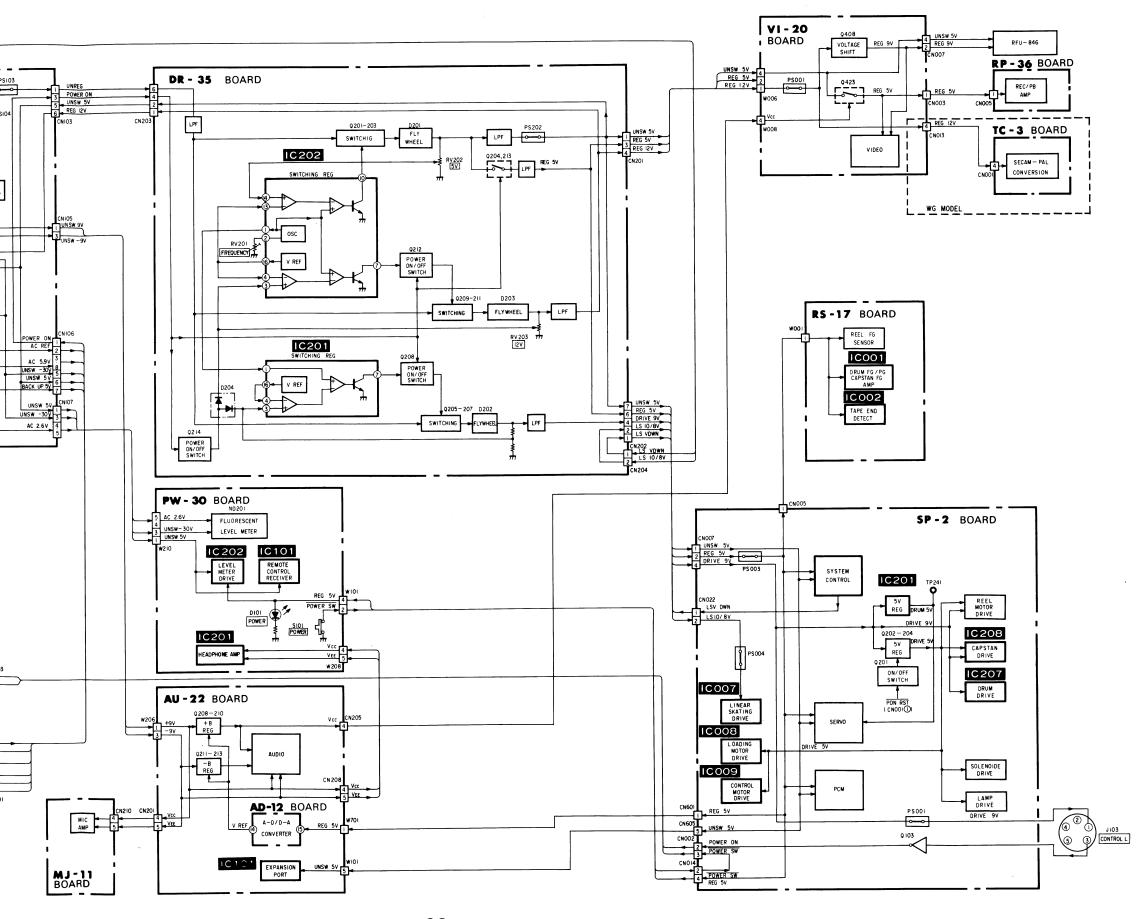




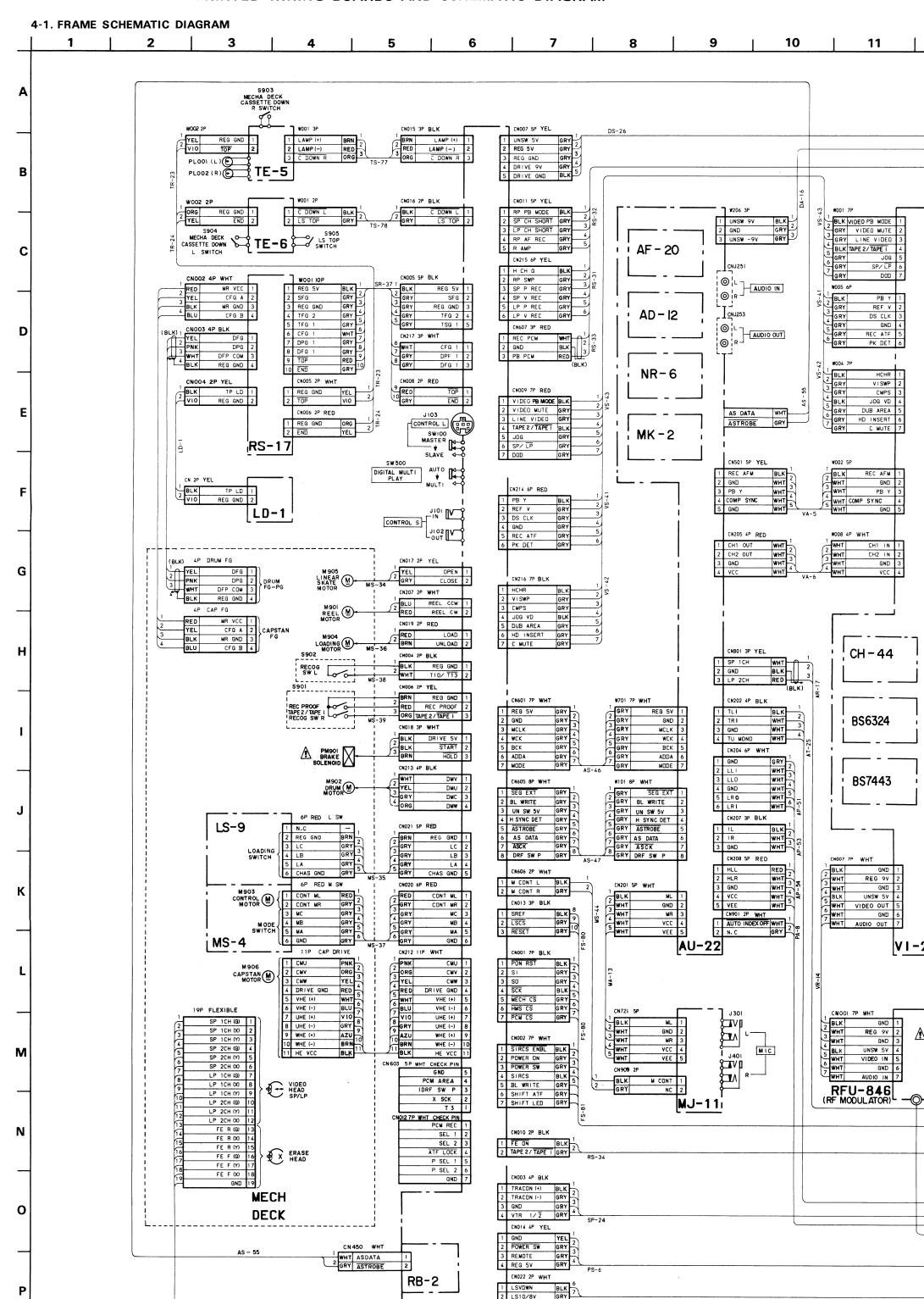


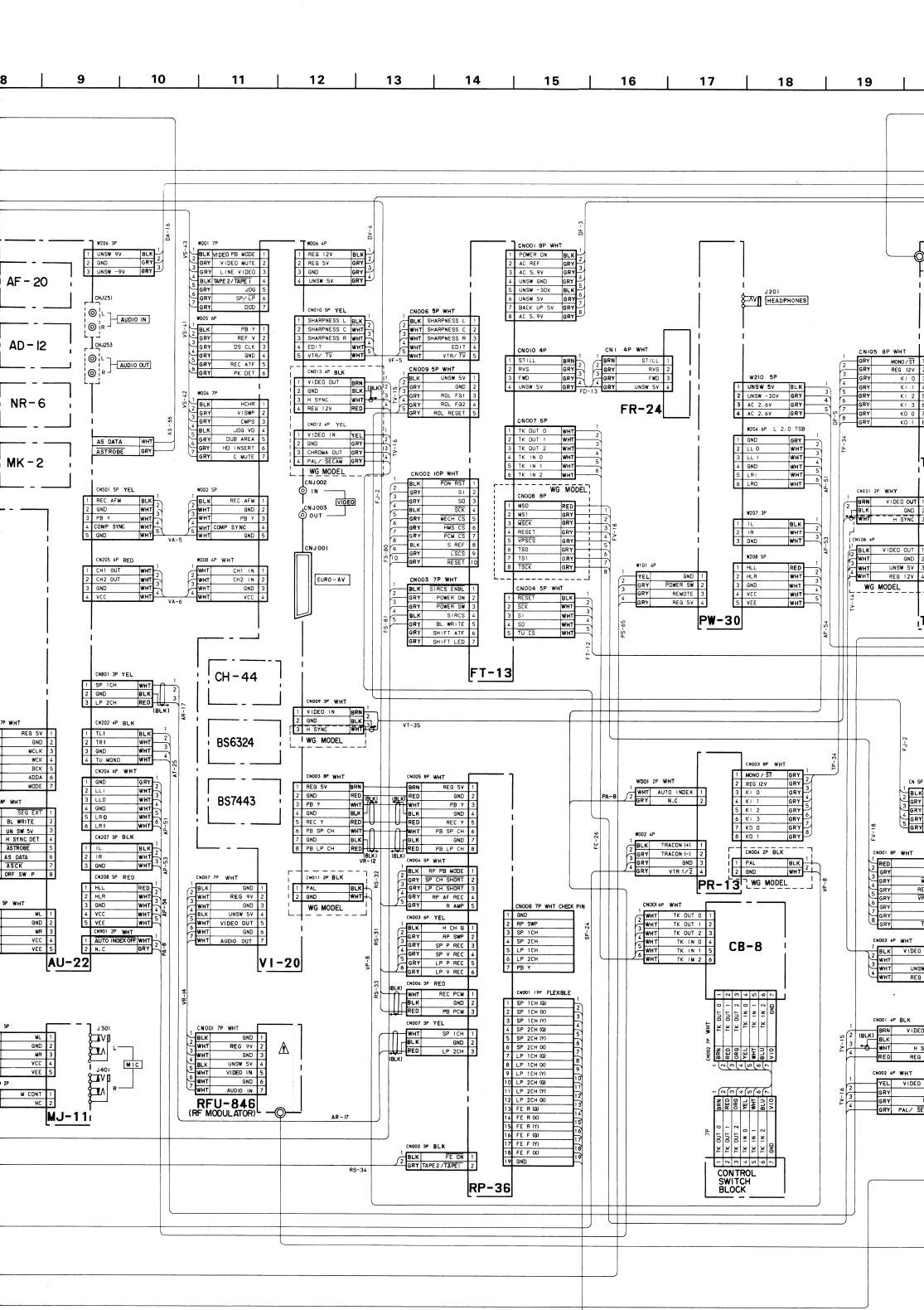
3-23. POWER BLOCK DIAGRAM

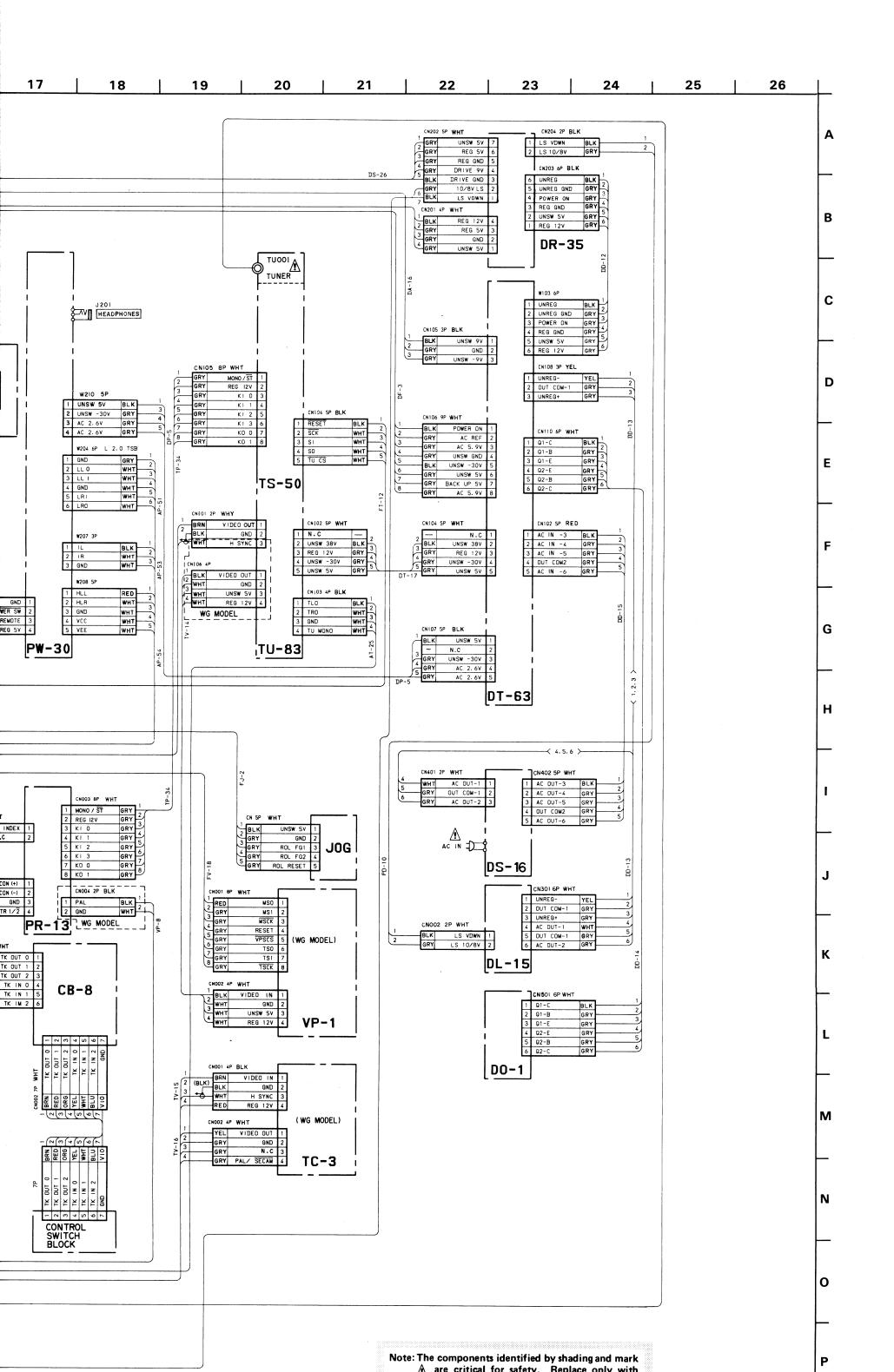




SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM







4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

RP-36(HEAD AMP/FLYING ERASE) PRINTED WIRING BOARD

-Ref. No. RP-36 BOARD: 1,000 series-

IC002

Q101 Q102 Q103 Q104

Q105 Q201 Q202 Q203 Q301 Q302 Q303 Q304 Q307 Q308 Q402 Q403 Q404

Note:

- — : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- Pattern from the side which enables seeing.
- Pattern of the rear side.
- B+ pattern from the side which enables seeing.
- Digital transistor (RP-36:Q103,Q105,Q203,Q302,Q303) transistor with resistors.

Refer to the RP-36 board schematic diagram for digital transistor

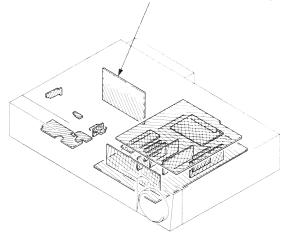
When indicating parts by reference number, please include the board name.

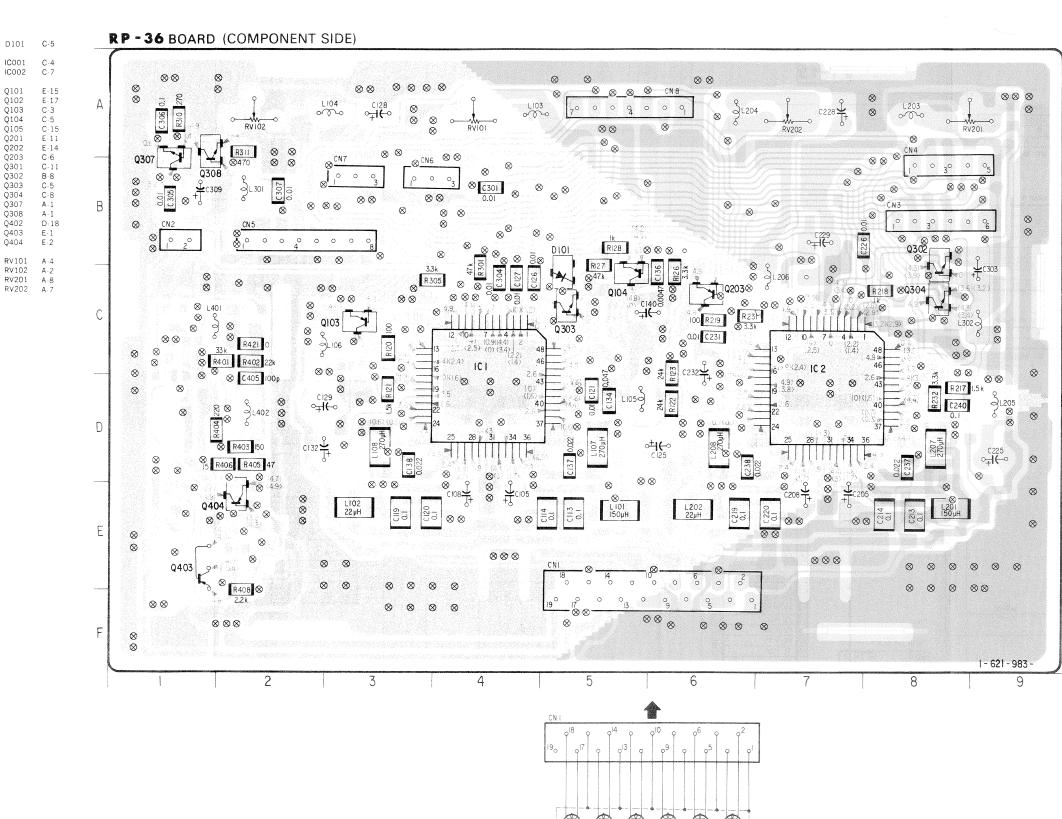
Caution:

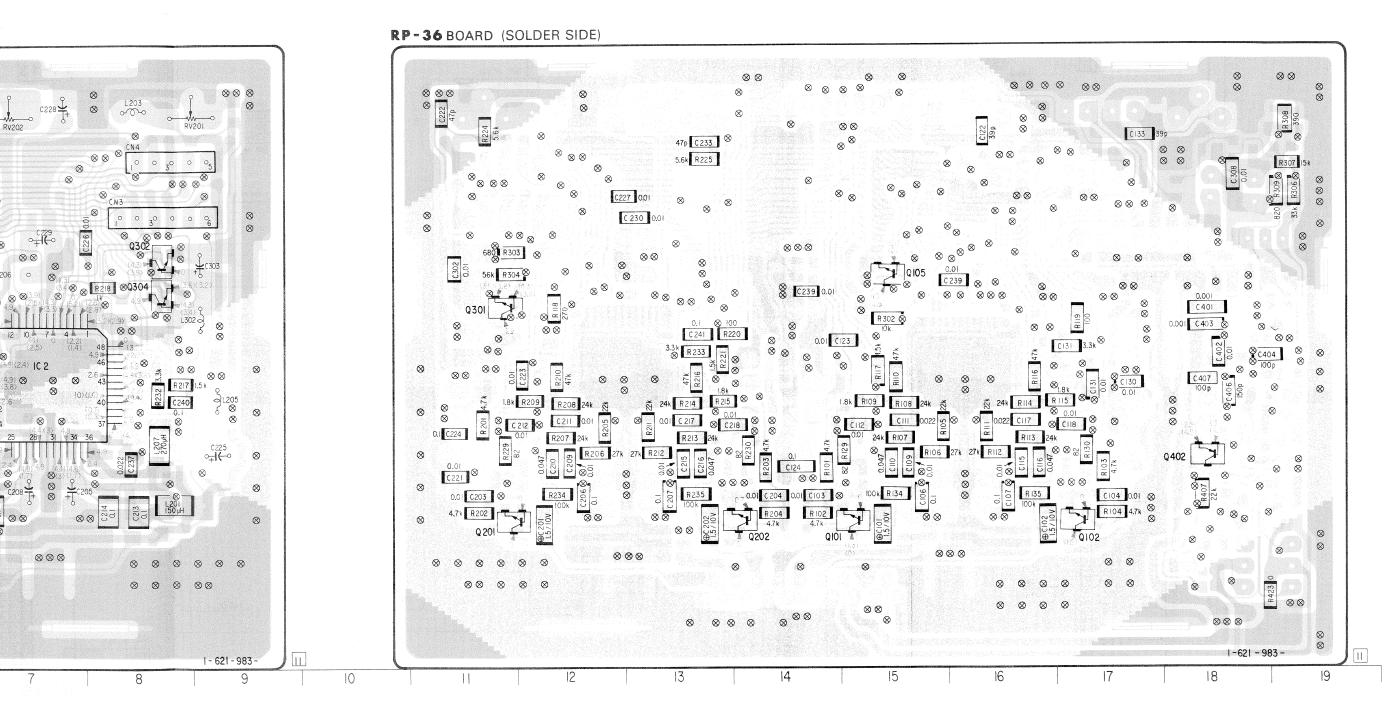
Pattern face side: Parts on the pattern fa (Solder Side) the pattern face are local

Parts face side: Parts on the parts face (Component Side) the parts face are involcated

RP-36(HEAD AMP/FLYING ERASE)

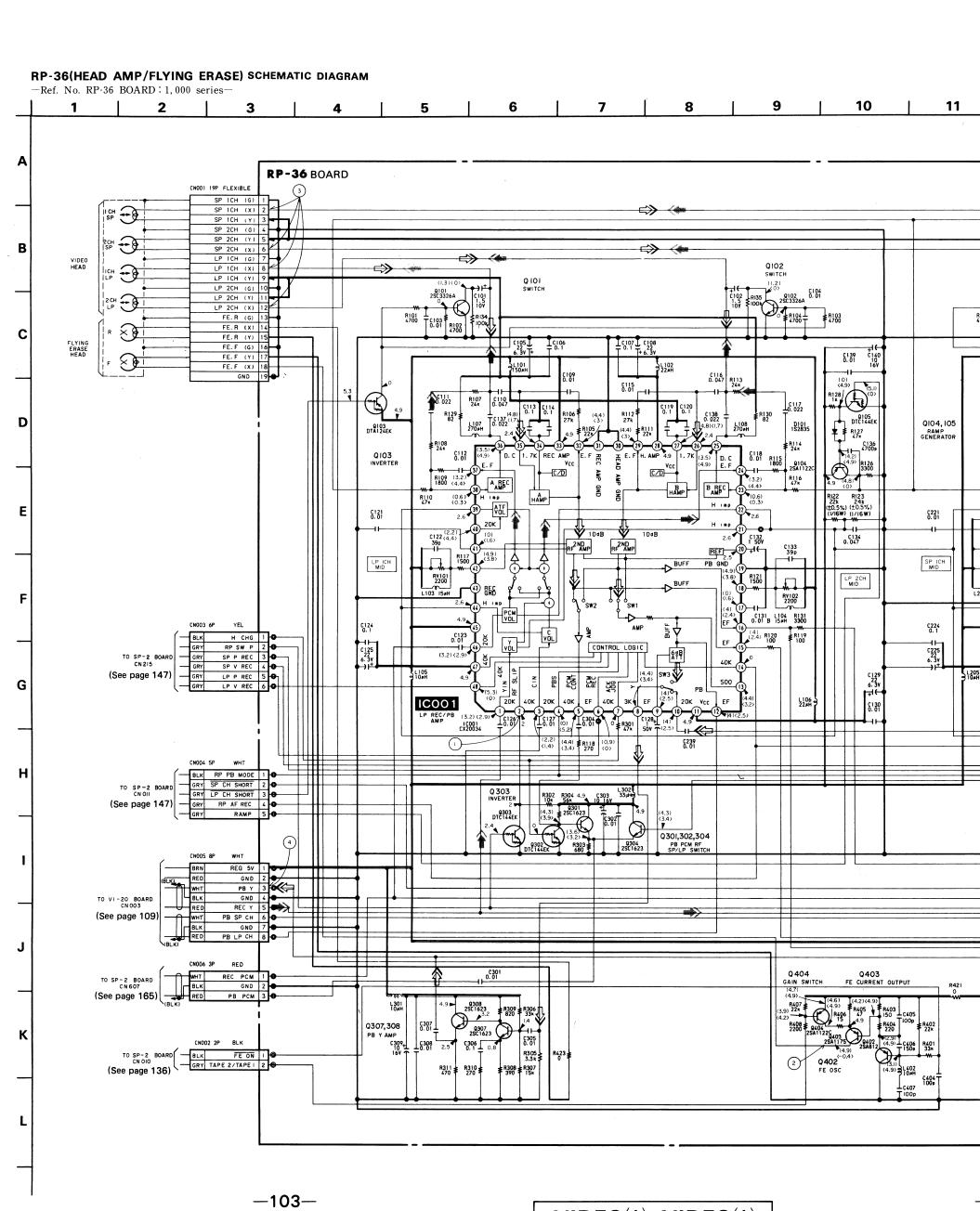


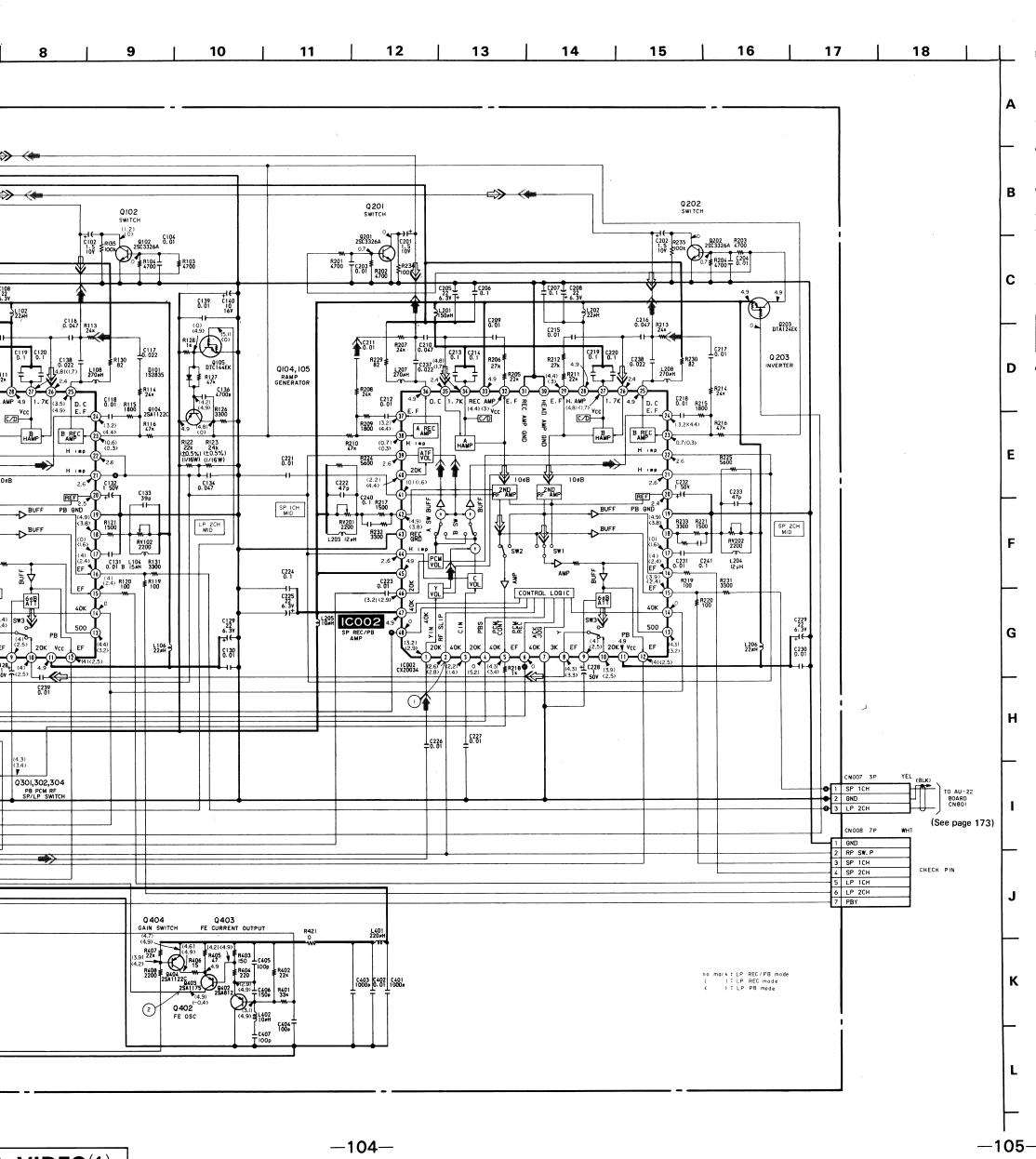


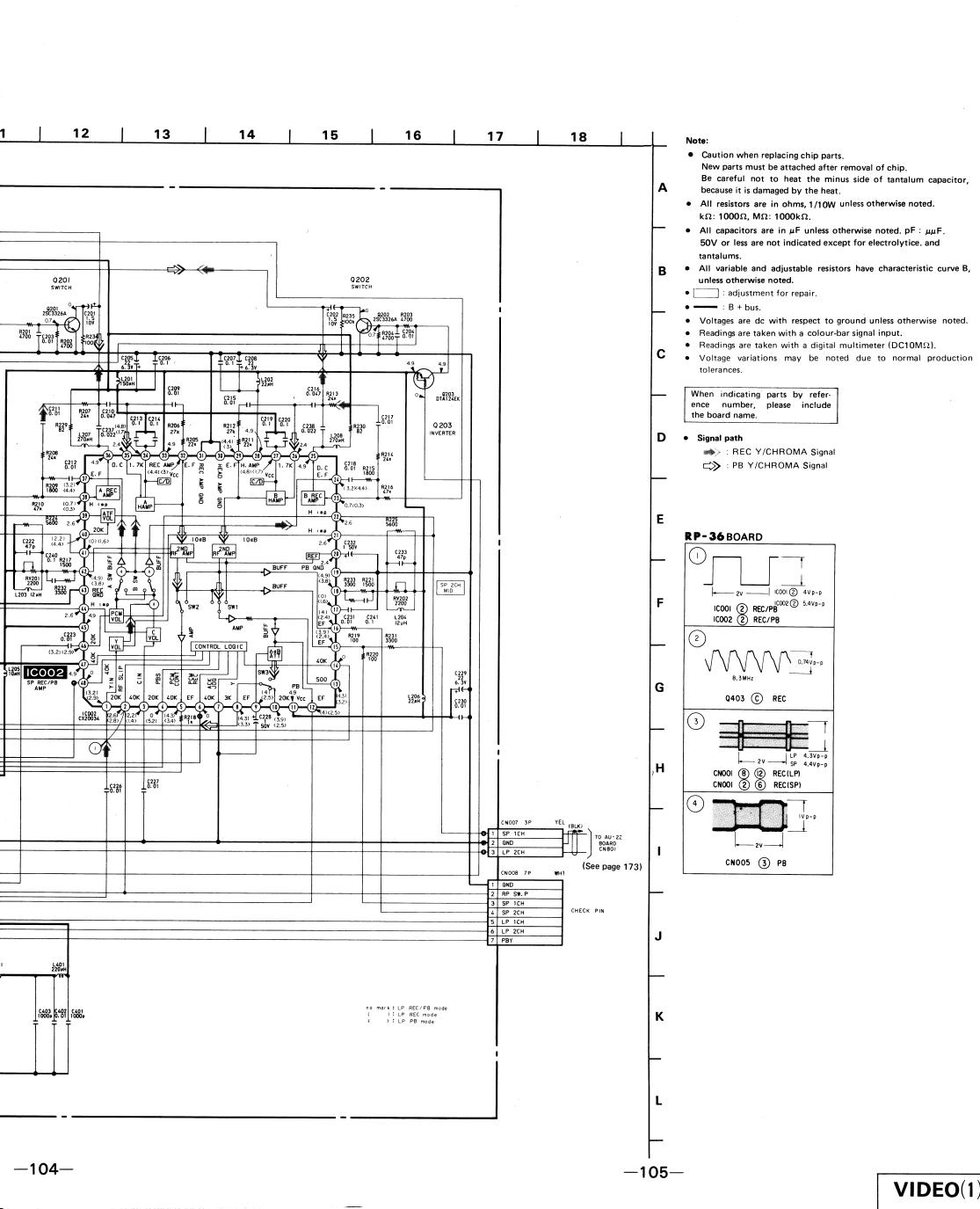


no mark : LP REC/PB mor
(): LP REC mode
(): LP PB mode

-102-

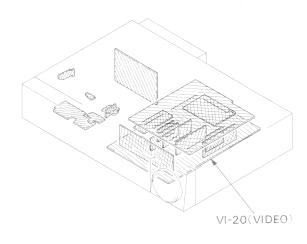






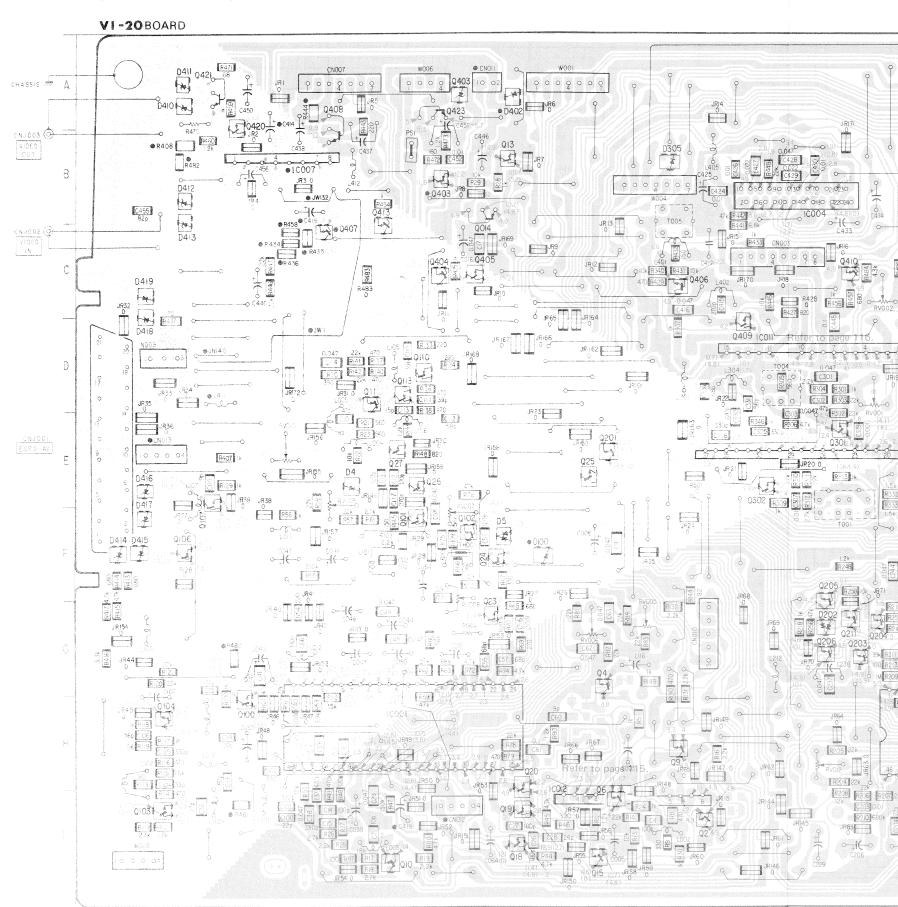
- — : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side.
- soldering side.
- B+ Pattern.

When indicating parts by reference number, please include the board name.



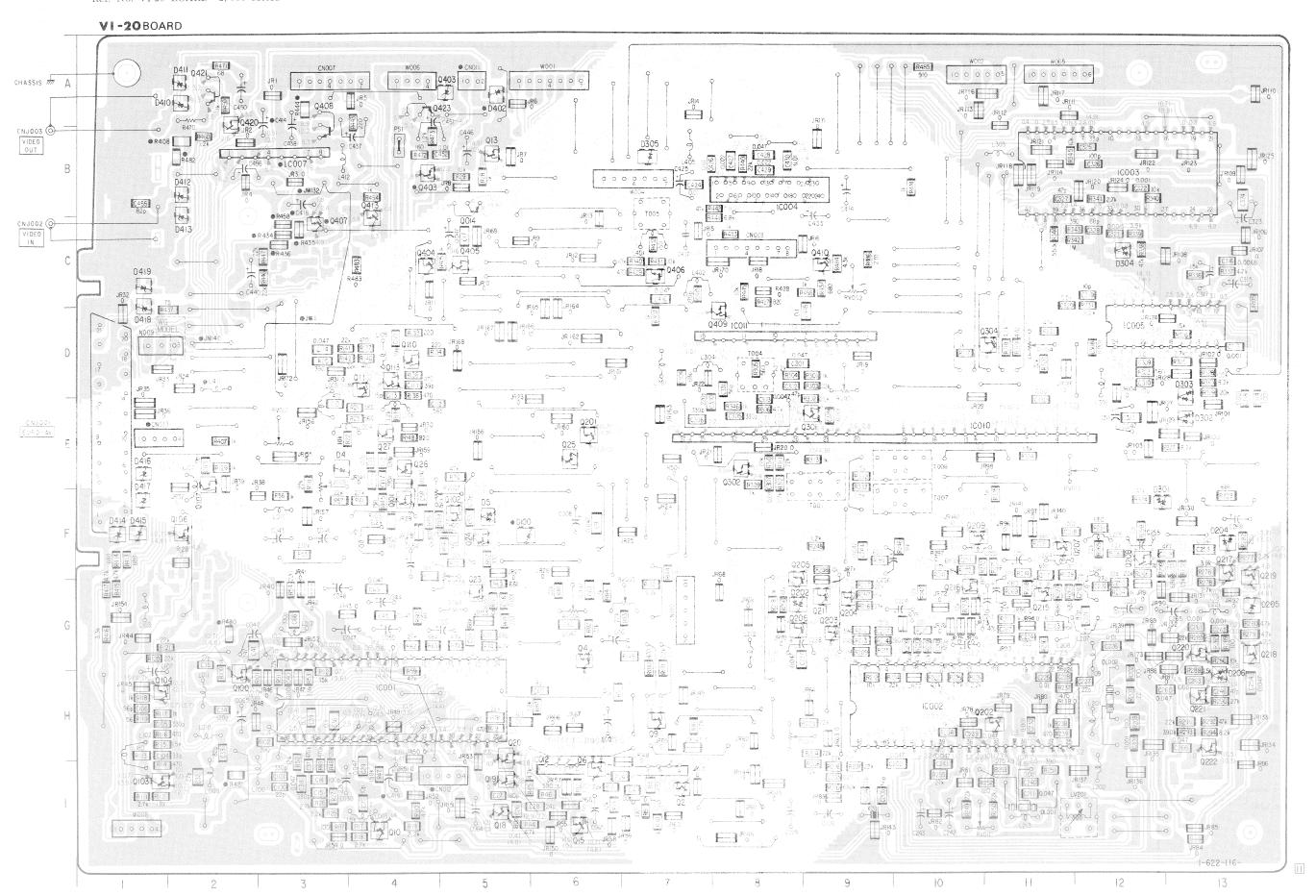
VI-20(VIDEO) PRINTED WIRING BOARD

Ref. No. VI-20 BOARD: 2,000 series—



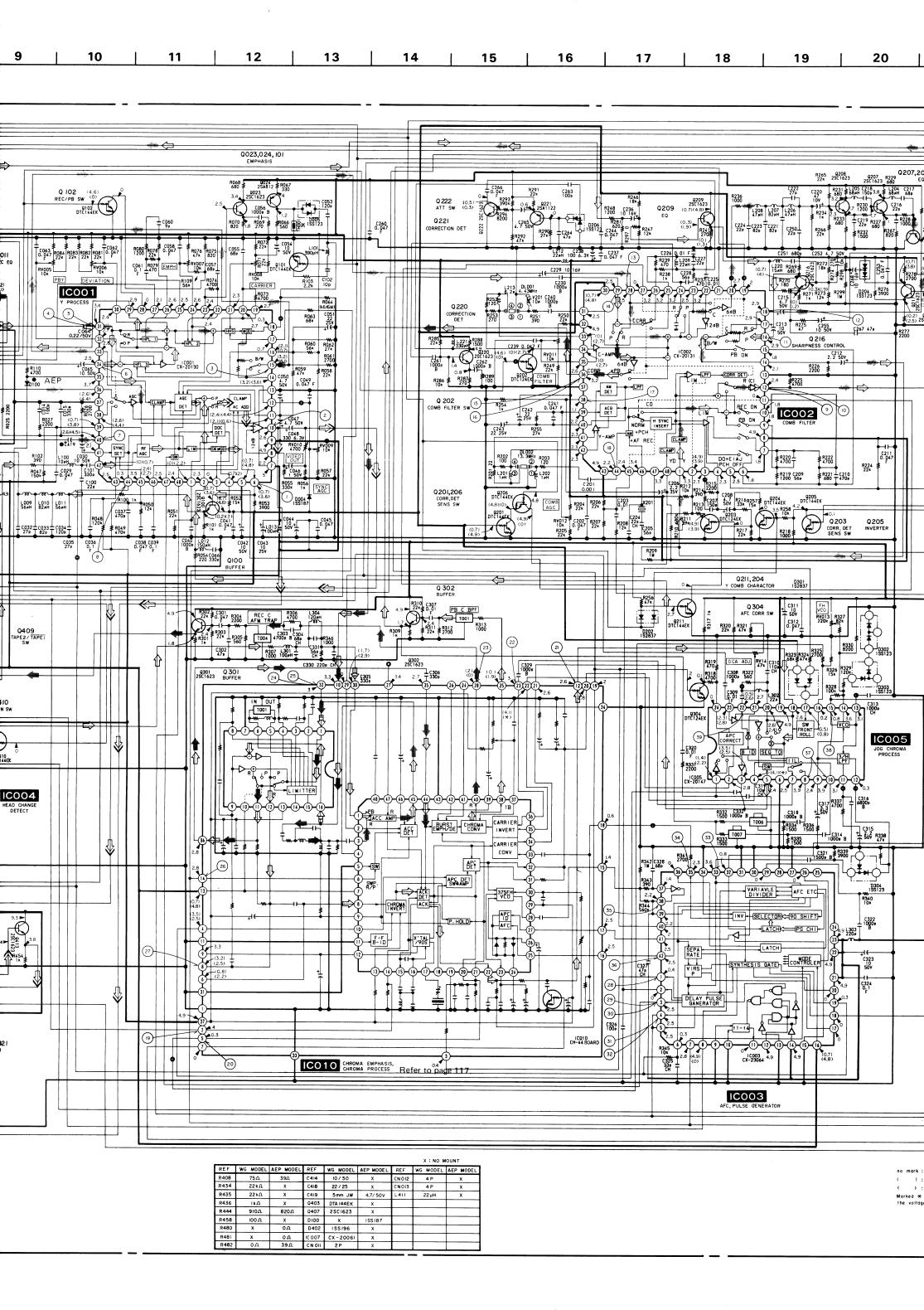
D004 D005 D100 D202 D204 D205 D206 D301 D303 D304 D303 D402 D403 D410 D411 D412 D413 D414 D416 D417 D418	E-3 F-5 G-8 F-13 G-13 H-13 F-12 E-13 C-12 B-7 A-5 A-5 A-2 B-2 C-1 F-1 F-1 E-1 E-1 E-1	Q101 Q102 Q103 Q104 Q106 Q107 Q110 Q113 Q201 Q203 Q203 Q204 Q205 Q206 Q207 Q208 Q209 Q211 Q215 Q216 Q217 Q217 Q218	F-4 F-5 F-1 H-1 F-2 E-2 D-4 D-4 E-6 G-9 G-9 G-9 G-9 G-9 G-9 G-9 F-12 G-9 G-9 G-9 F-12 G-9 G-9 F-12 G-9 G-9 F-12 G-9 G-9 G-9 G-12 F-12 G-9 G-12 G-12 G-12 G-12 G-12 G-12 G-12 G-12
D418		Q21 9	F-13
D419		Q220	G-13
	H-4	Q221	H-13 H-13 E-9 E-8
10002	H-10	Q222	M-L
10003	H-10 B-12	Q301	5.9
10003	B-8	Q302	6.8
10005	D-12	Q304	D-11
10007	8-3	0403	B-4
10007	E-10	Q404	C-4
10011	0.8	Q405	C-5 C-7
10012	1-6	Q406	
HOVAZ		Q407	0-3
LV201		Q408	A-3
	1.12	Q409	0-8
		Q410	0.9
	1:7	0413	8-4
Q004	G-6	Q420	A-2
		0421	A-2 A-4
0009	H-7	Q423	4.4
0010	1.4	0.7000	
Q011	D 4	RV001	0.9
Q013	B-5 B-5	RV002 RV005	0-9 G-7
Q014	8.0	RV006	G-6
Q015	1.6	RV007	
9018 0010	1-5	RV007	F-4 F-5
	H-5	RV008	5.3
0018 0019 0020 0023 0024 0025 0025	14 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	8V016	E-3
7022 0024		RV010	1-10
	E-6	87013	F-8
8945 0624	E 4	RV013	
9027 0027	E-4	RV014	
0102			

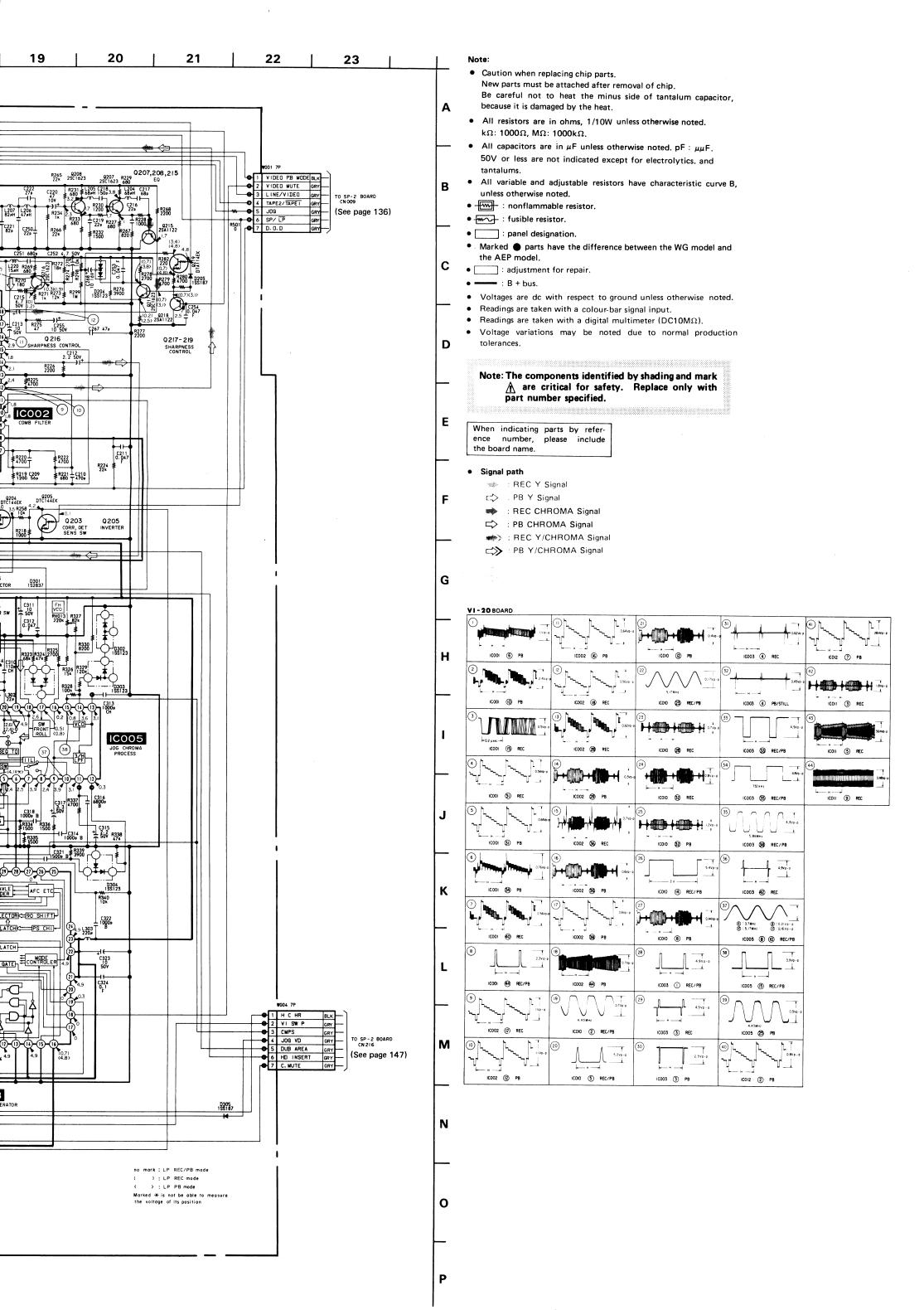
						X 1 NG MODEL		
-	WG MODEL	AEP MODEL	REF	WG MODEL	AEP MODEL	REF	WG MODEL	ALC: ROSE
8	75.0.	39Ω	C414	10 / 50	×	CN 012	4 P	
4	22kΩ	X	C418	22 / 25	X	CN 013	4 P	X
5	22 k.Q.	×	C419	5mm JW	4.7/ 50 V	LAII	22 µH	X
6	rk.O.	×	0403	DTA 144EK	×	JW I	JUMPER	X
14	910.0.	820A	0407	2501623	×	JW132	Х	JUMPER
58	1000	X	D100	×	155187	J WI 40	X	JUMPER
30	X	OU	0402	188196	X			
BI	Х		10 007	CX-20061	X			
82	0.0	39.0.	CNOH	2.0	X			



(): LP REC mode (): LP P8 mode Marked X is not be able to med the voltage of its position.

Ρ





• O : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

♦ ⊗ : Through hole.

• Pattern from the side which enables seeing.

: Pattern of the rear side.

: B+ pattern from the side which enables seeing.

• Digital transistor (BS7443:DT001,DT002,DT003,DT004,DT005 DT006, BS6324:DT001) transistor with resistors.

Refer to the BS7443,BS6324 boards schematic diagram for digital transistor.

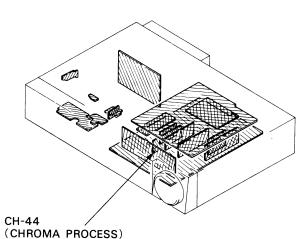
When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side)

the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

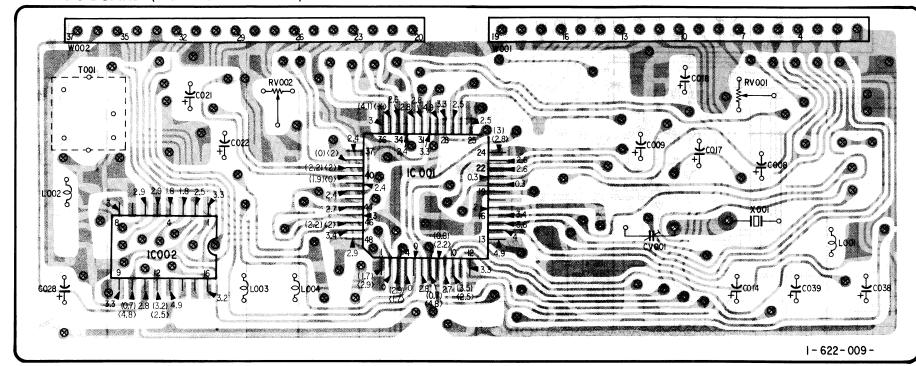


CH-44(CHROMA PROCESS), BS6324(MIX), BS7443(NOISE CANCEL) PRINTED WIRING BOARDS

-Ref. No. CH-44 BOARD: 3,000 series, BS6324 BOARD: 3,100 series, BS7443 BOARD: 3,200 series

IC010

CH-44 BOARD (COMPONENT SIDE)



no mark: LP REC/PB mode (): LP REC mode

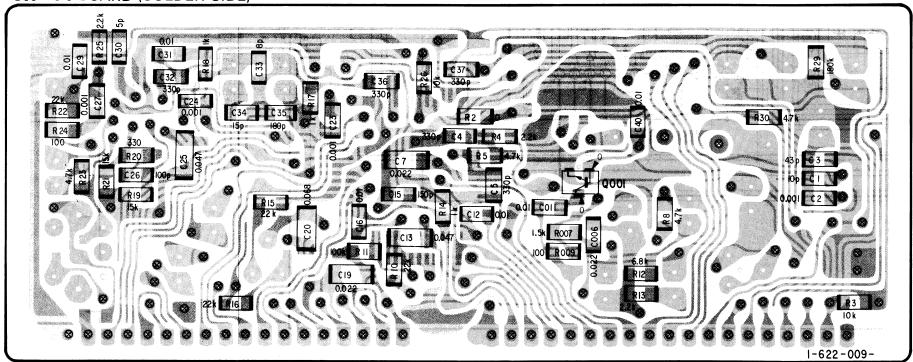
():LP PB mode

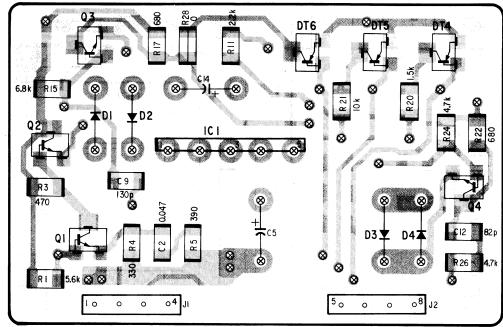
Markd X is not able to measure the voltage of its position

Ш

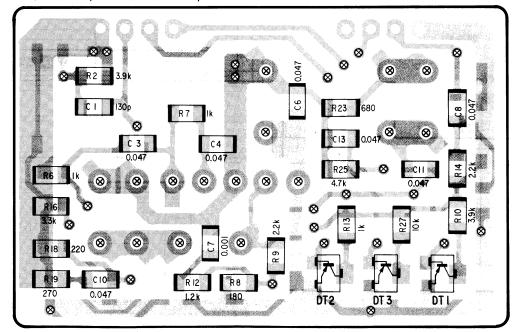
IC010

CH-44 BOARD (SOLDER SIDE)

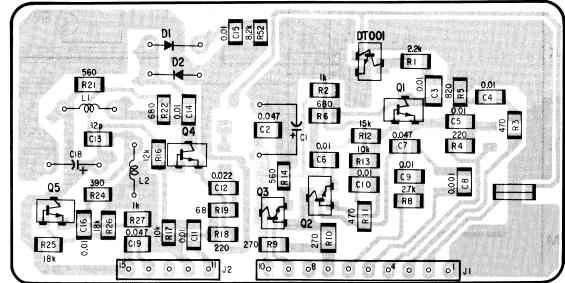


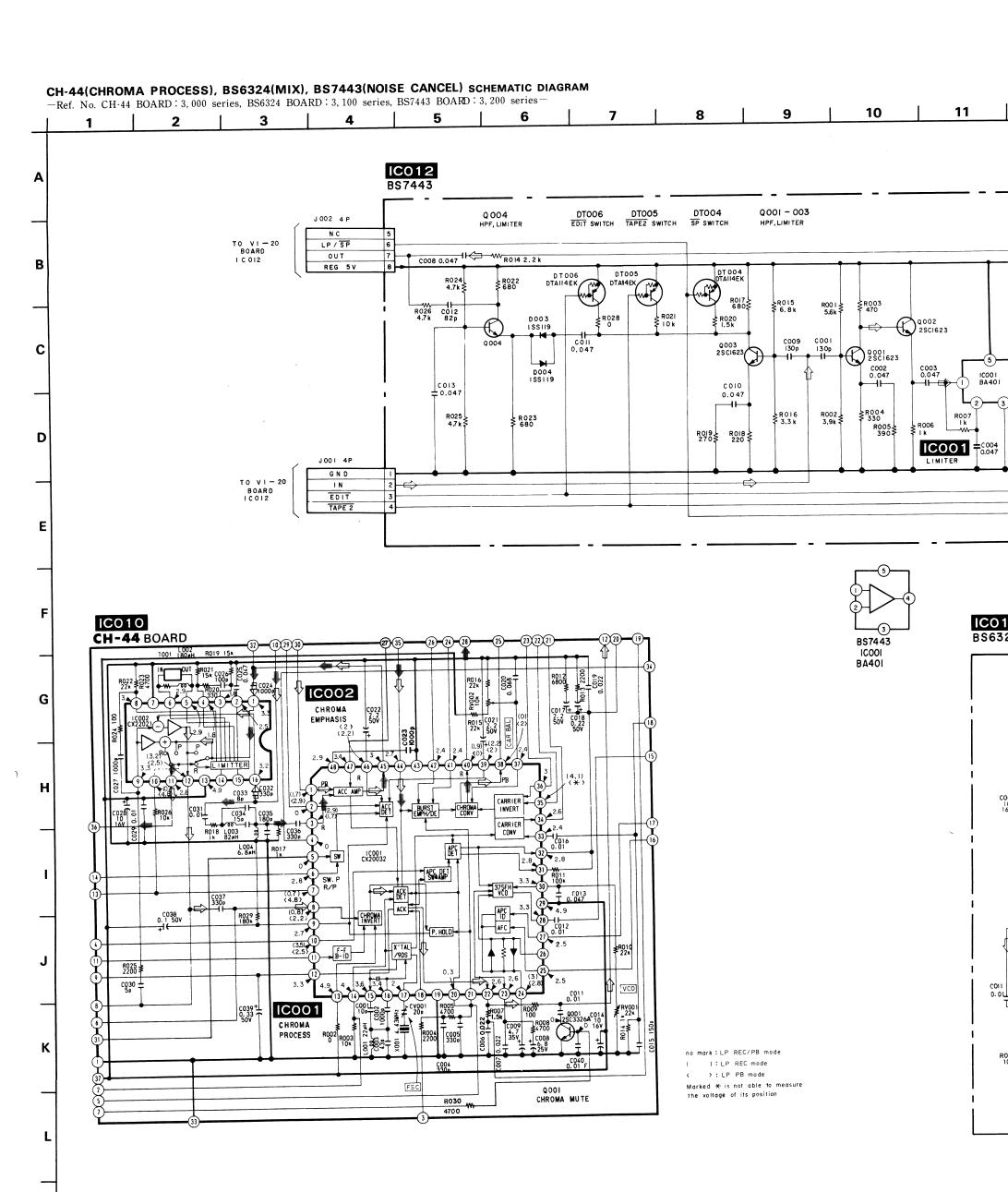


ICO12 B\$7443(SOLDER SIDE)







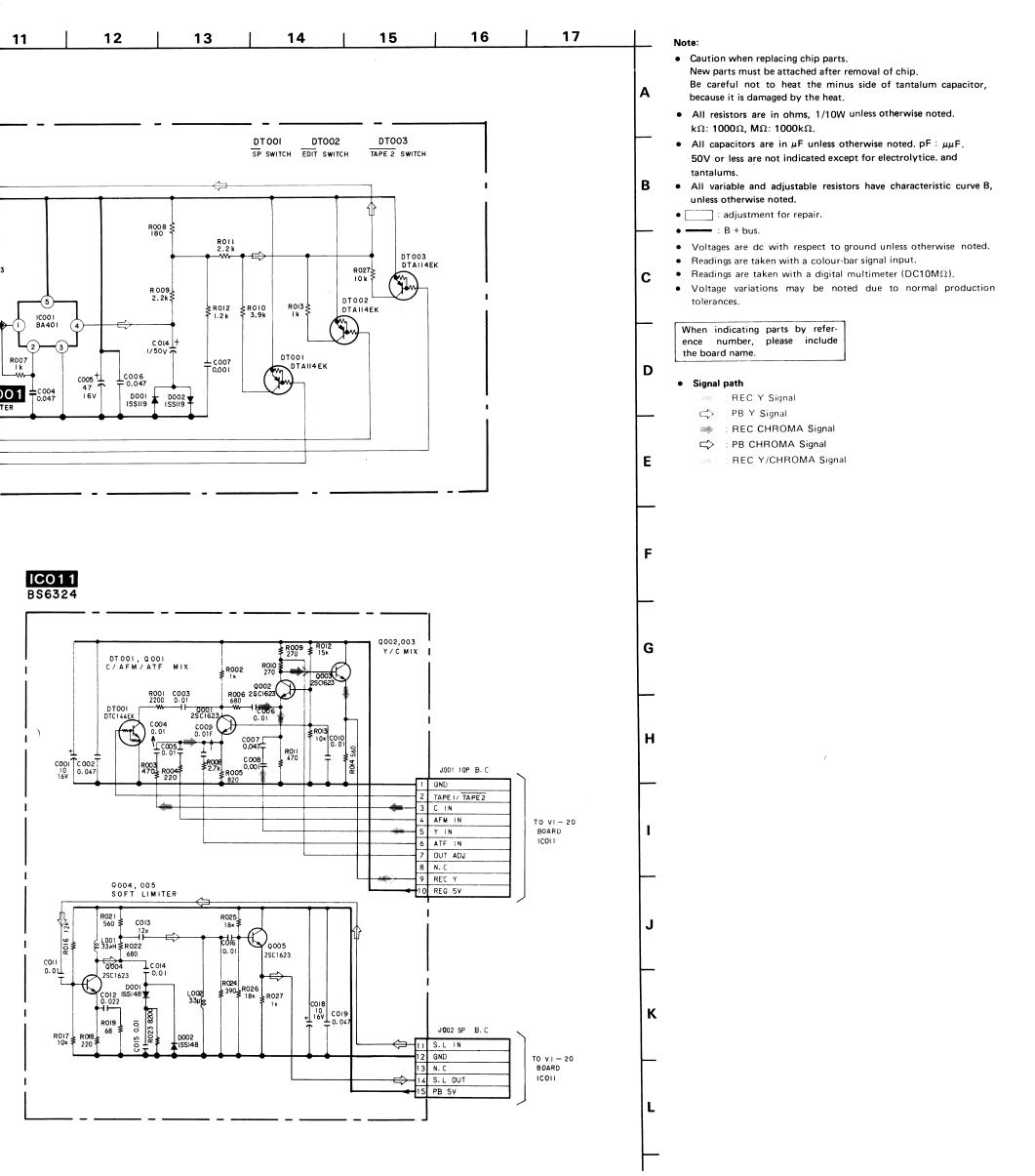


VIDEO(3)

VIDEO(3)

-117-

-118



• O— : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

• ⊗ : Through hole.

• Pattern from the side which enables seeing.

: Pattern of the rear side,

• 38 : B+ pattern from the side which enables seeing.

• Digital transistor (TC-3:Q007) transistor with resistors. Refer to the TC-3 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

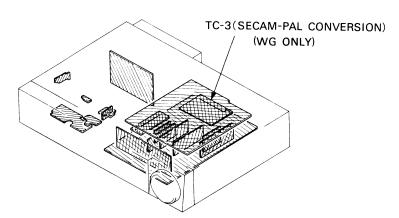
Caution:

Pattern face side: Parts on the pattern face side seen from

(Solder Side) the pattern face are indicated.

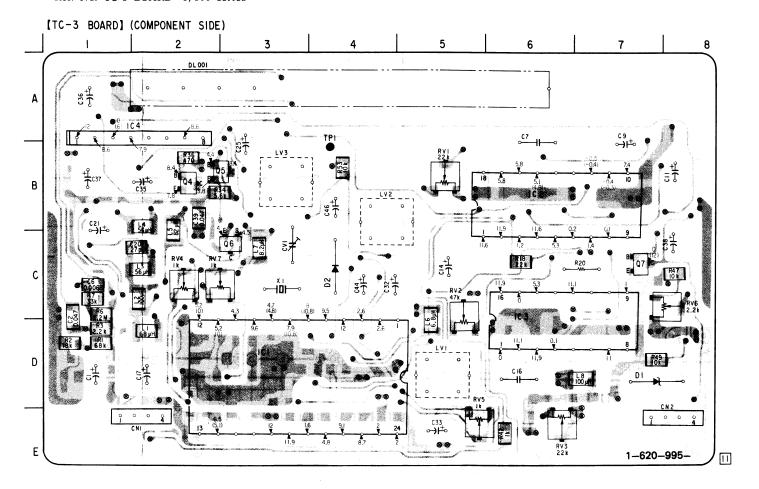
Parts face side: Parts on the parts face side seen from

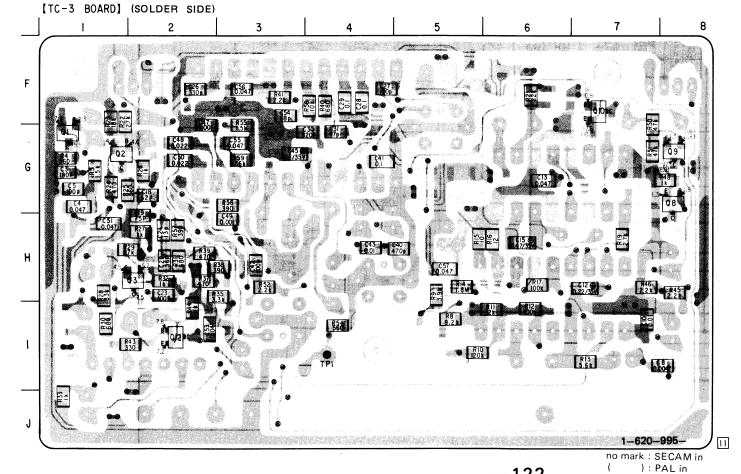
(Component Side) the parts face are indicated.



TC-3(SECAM-PAL CONVERSION) PRINTED WIRING BOARD (WG Model)

-Ref. No. TC-3 BOARD: 3,500 series-





CV1 C-3

D·3 B·6 C·6 A·2

D-5 B-4 B-3

G-1 H-2 B-2 B-2 C-3 C-7 B-8 B-8 A-7 D-2

B-5 C-5 E-6 C-2 E-5 C-8 C-3

B-4,I-4

IC1 IC2 IC3 IC4

LV1 LV2 LV3

Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q12

RV1 RV2 RV3 RV4 RV5 RV6 RV7

TP1

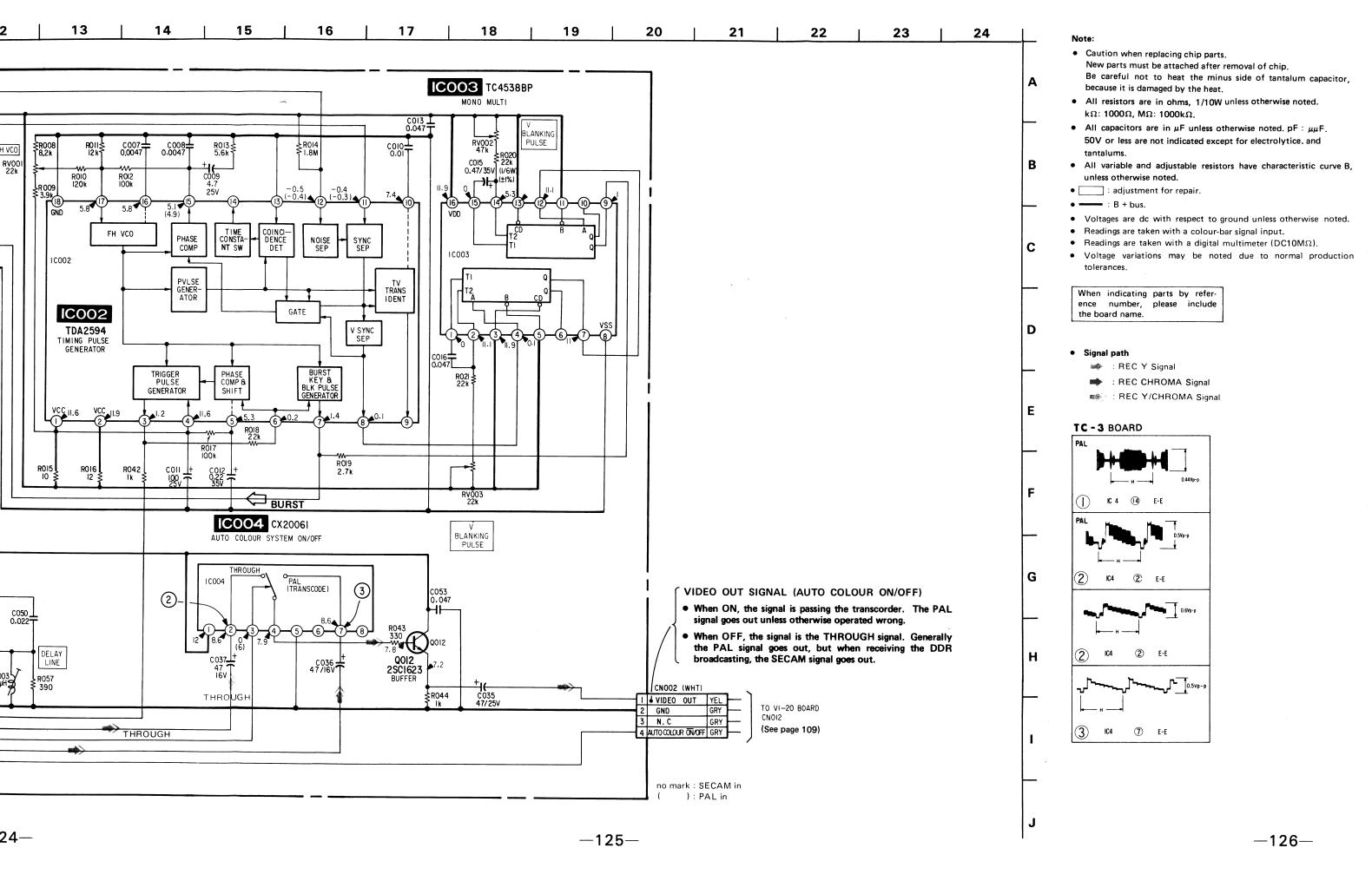
—123—

VIDEO(4) VIDEO(4)

D002 ISS106

THROUGH

THROUGH



: indicates a lead wire mounted on the component side.

indicates a lead wire mounted on the printed side.

: Through hole.

• Pattern from the side which enables seeing.

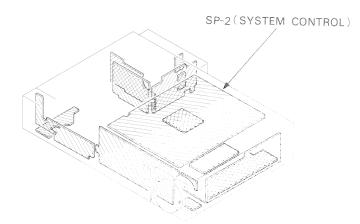
: Pattern of the rear side.

• B+ pattern from the side which enables seeing.

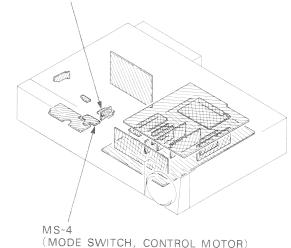
When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from Parts on the parts face side seen from (Component Side) the parts face are indicated.



LS-9 (LOADING SWITCH)



TP603 G 20 TP604 D 18 TP607 G-22 TP608 C 21 TP609 E-18 F-10 F-9 C-13 C-14 B-14 Q605 Q606 Q701

D025
D021
D060
D080
D081
D082
D106
D107
D108
D120
D203
D204
D205
D206
D208
D209
D211
D212
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D226
D227
D236
D227
D236
D231
D222
D233
D390
D391
D392
D393
D501
D502
D600
D601
D603
D604
D701 A-28 C-4 K-15 G-16 C-16 B-16 C-16 B-2 F-26 B-7 D-7 H-24 K-27 L-3 I-22 J-30 D-27 C-6 I-24 K-30 H31 H31 G3 D10 D10 B5 B28 B5 L22 L22 L22 L22 L22 H23 H36 H16 H16 H16 G16 H16 H16 F16 D-23 D-24 RV205 RV206

RV603 RV604

TP001 TP002 TP003 TP004 TP005 |C001 |C002 |C003 |C004 |C005 |C007 |C008 |C009 |C010 |C011 |C012 |C120 |C121

H-10 I-10 C-31 D-2 D-2 J-14

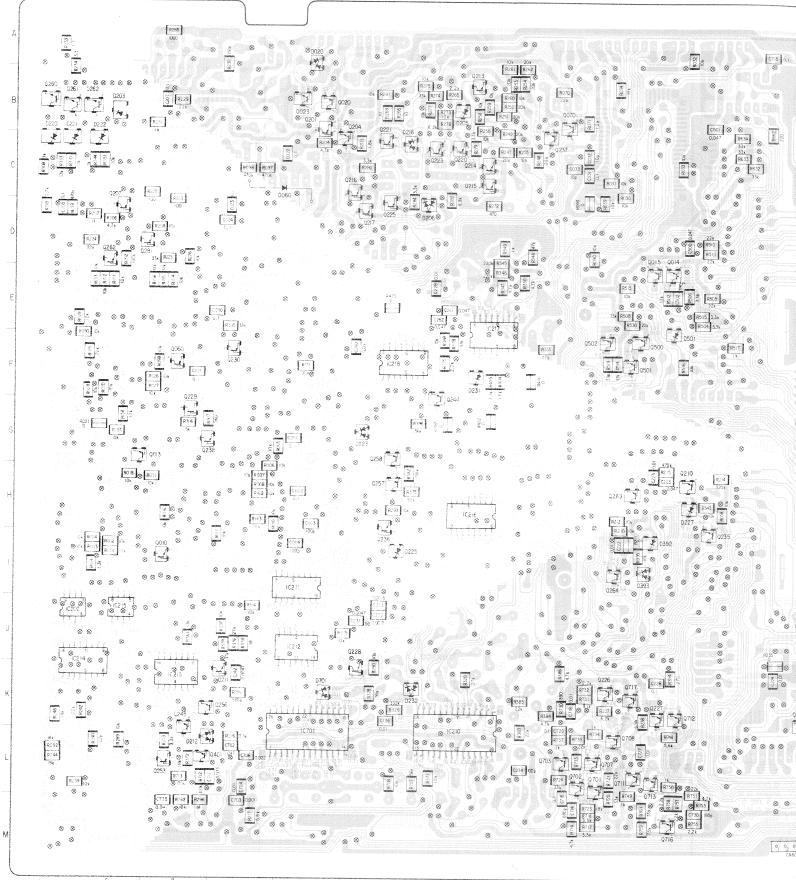
F-6 E-25 F-27 E-23 C-22 J-15 B-19 H-20 E-20 F-20 D-14 E-18 H-18 K-5 L-30

IC219 IC220 IC500 IC501 IC502 IC600 IC601 IC602 IC603 IC604

IC605 IC606 IC701 IC703

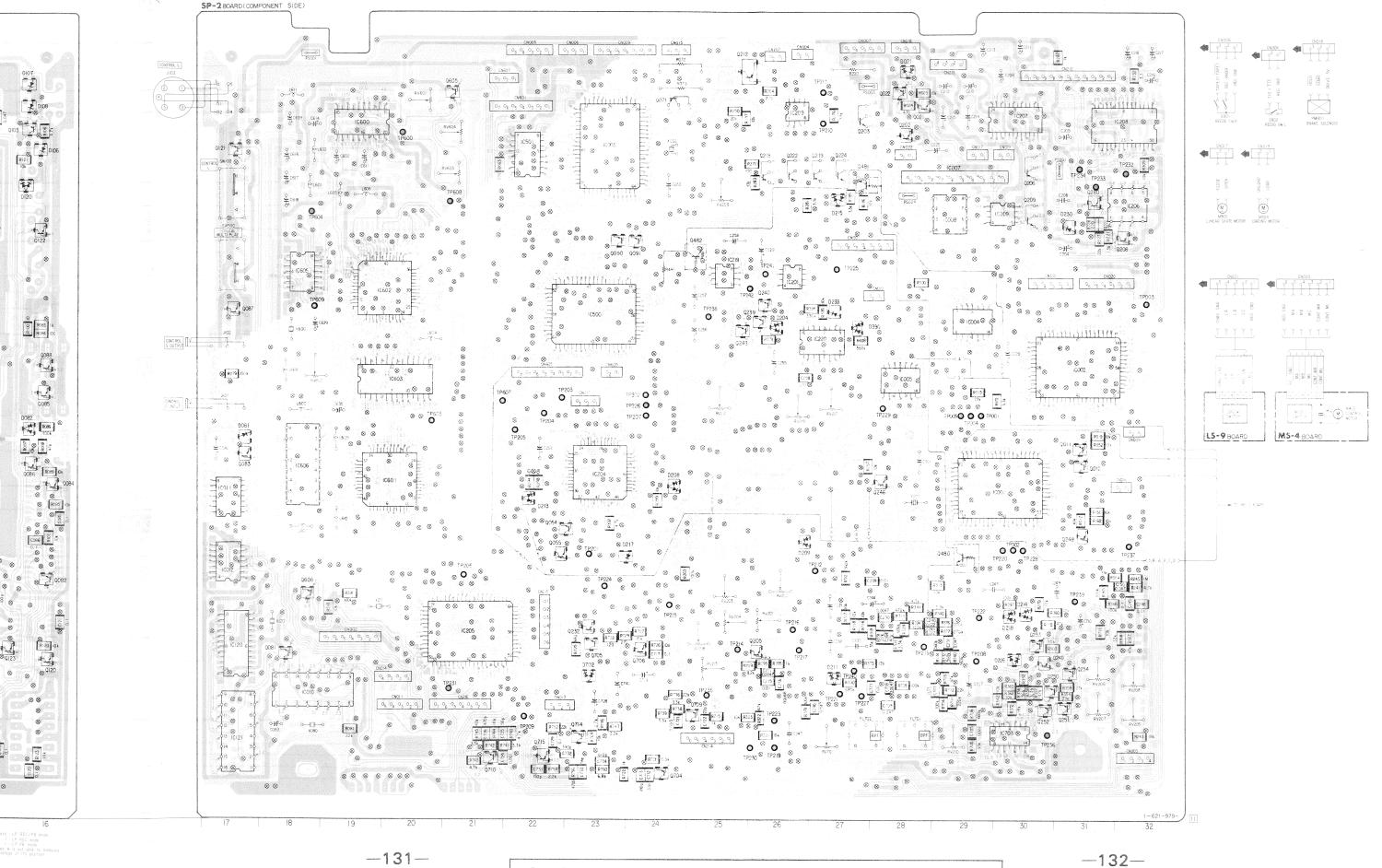
TP235 TP236 TP237 TP238 TP239 TP240 TP241

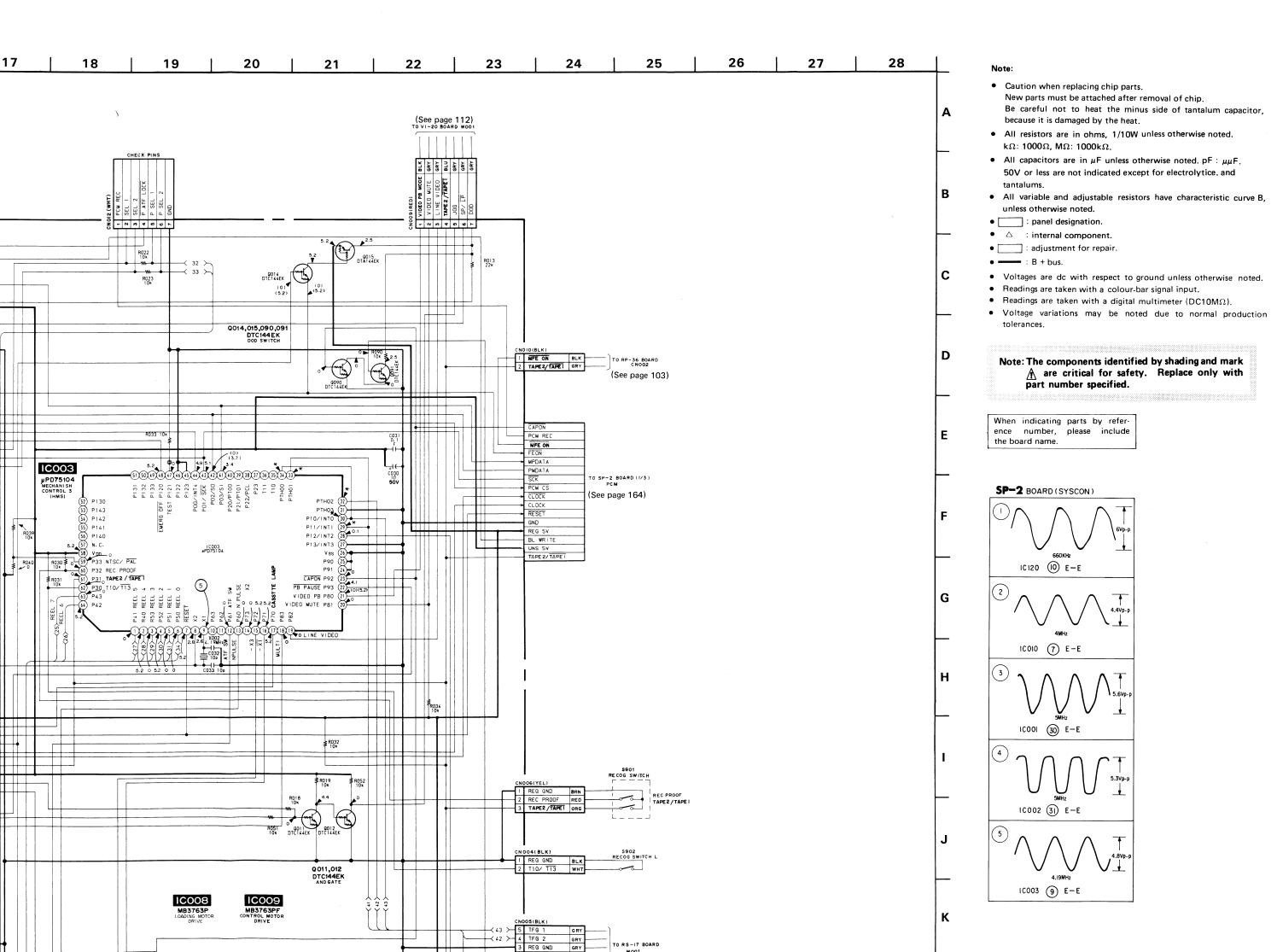
SP-2(SYSTEM CONTROL), LS-9(LOADING SWITCH), MS-4(MODE SWITCH, CONTROL MOTOR) PRINTED WIRING BOARD -Ref. No. SP-2 BOARD: 4,000 siries, LS-9 BOARD: 5,000 series, MS-4 BOARD: 6,000 series-

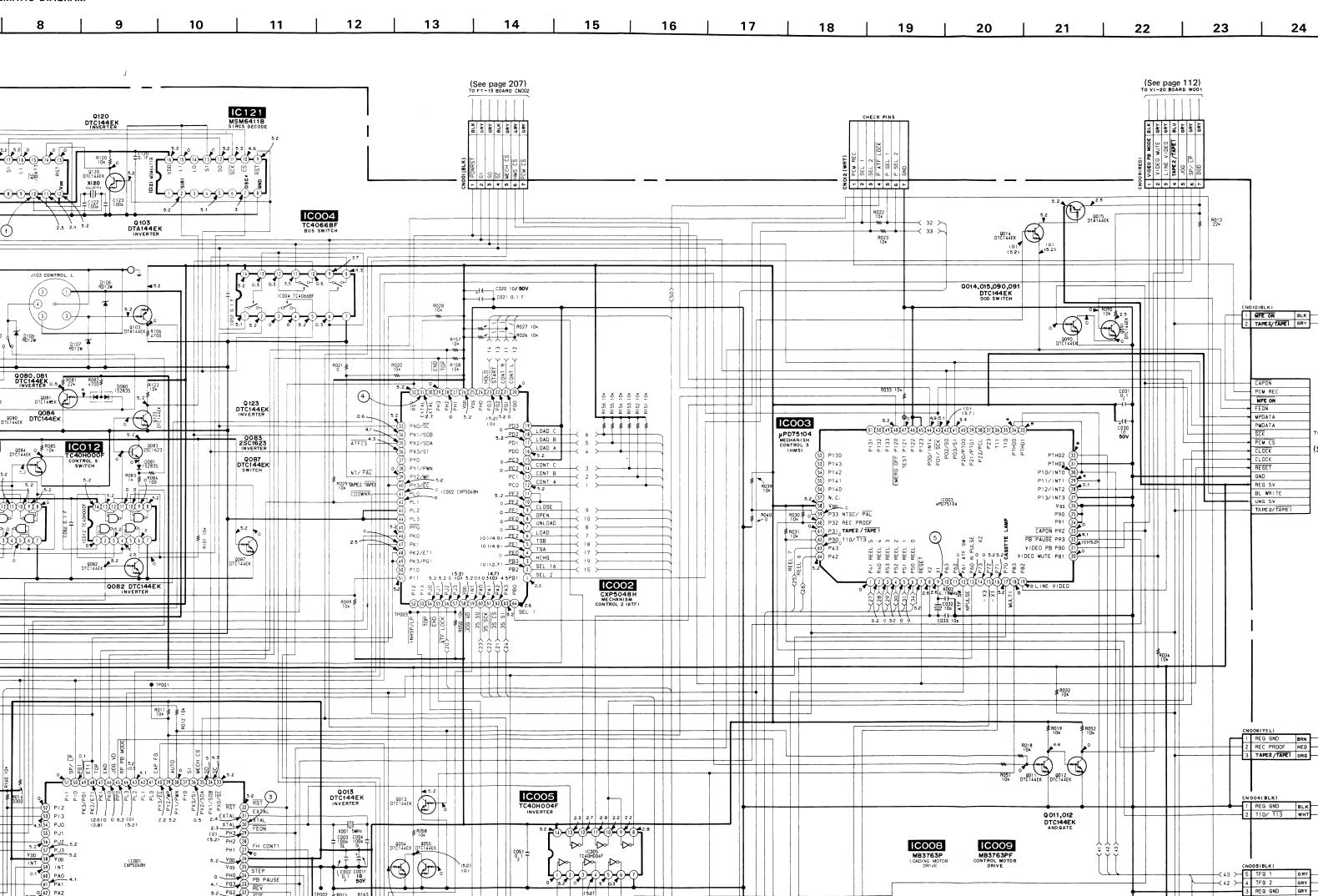


Ref. No. SP-2 BOARD: 4,000 siries, LS-9 BOARD: 5,000 series, MS-4 BOARD: 6,000 series



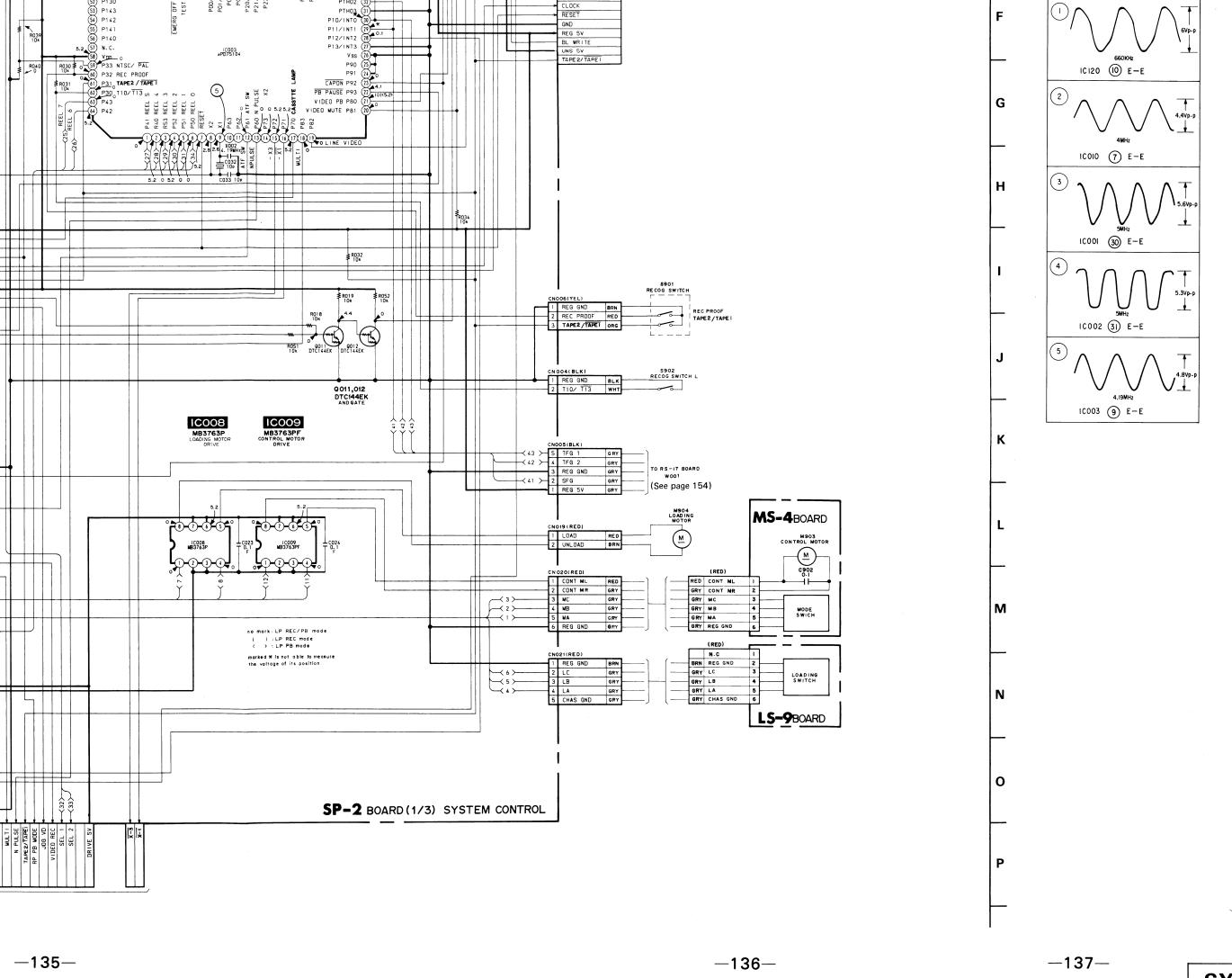


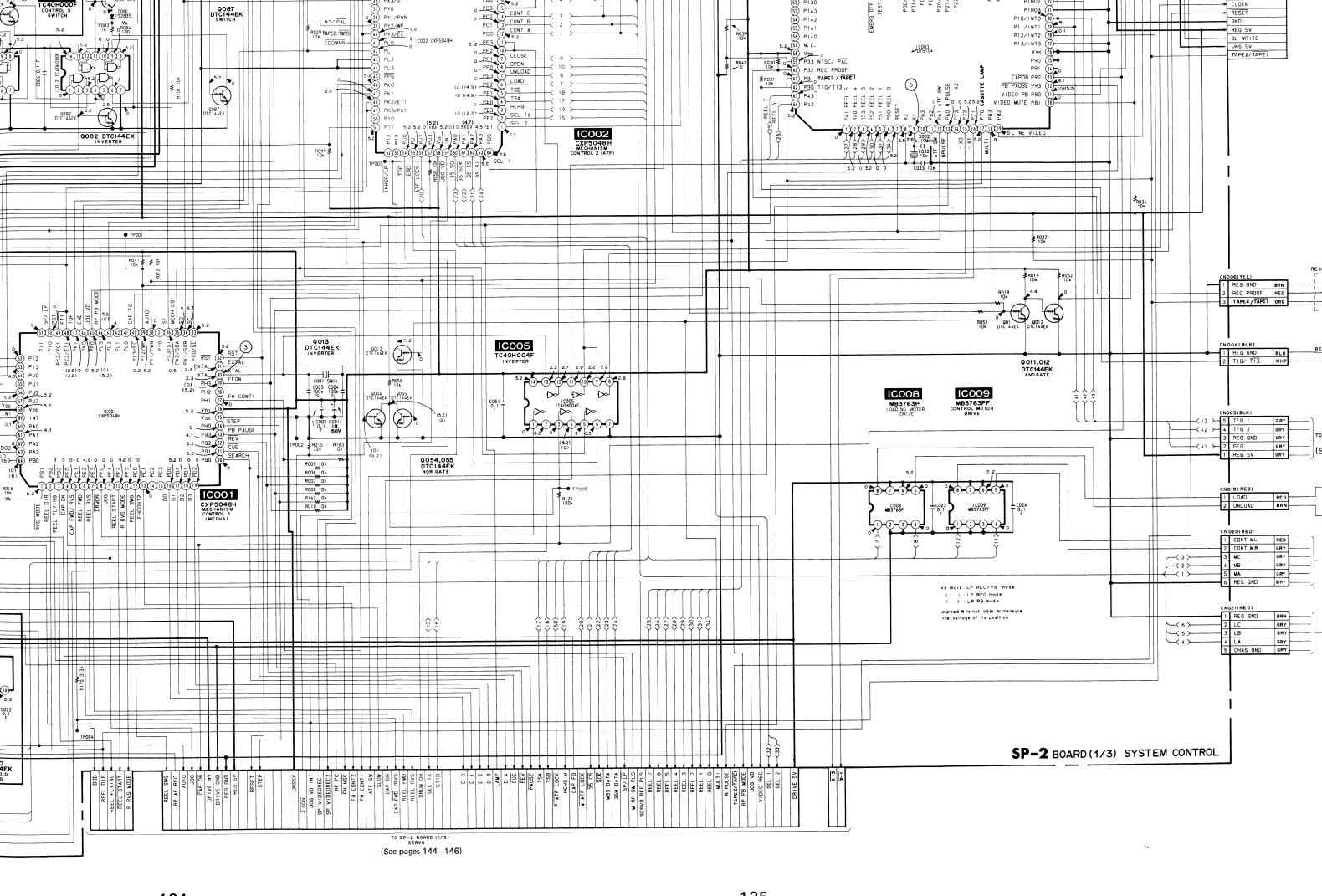




TO PR- 13 BOARD

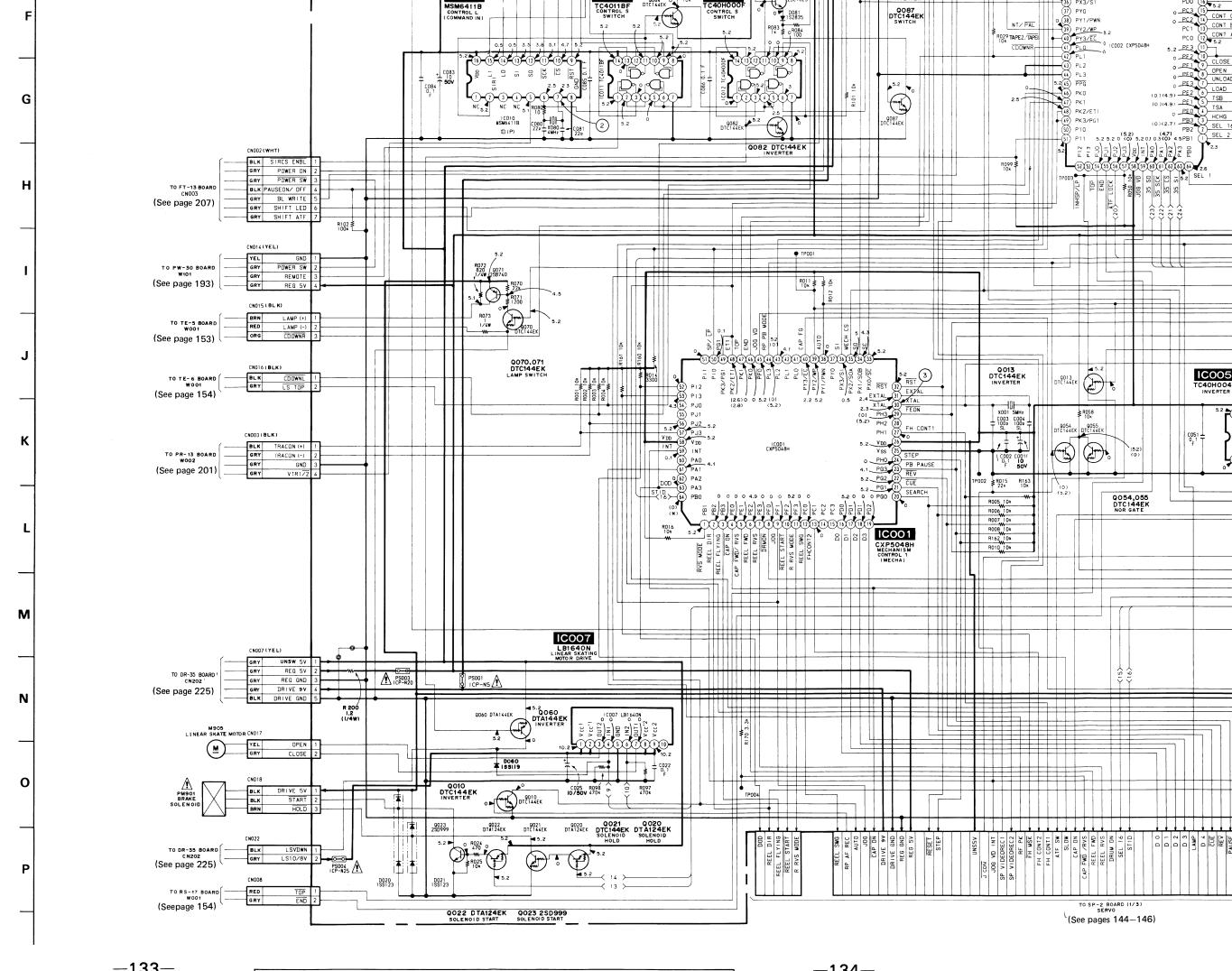
GRY TRACON (-





TROL

P1H02 (32)



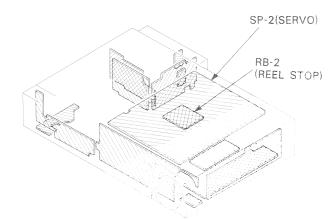
- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side,
- : Through hole.
- Pattern from the side which enables seeing.
- : Pattern of the rear side.
- B+ pattern from the side which enables seeing.

Caution:

SERVO(1)

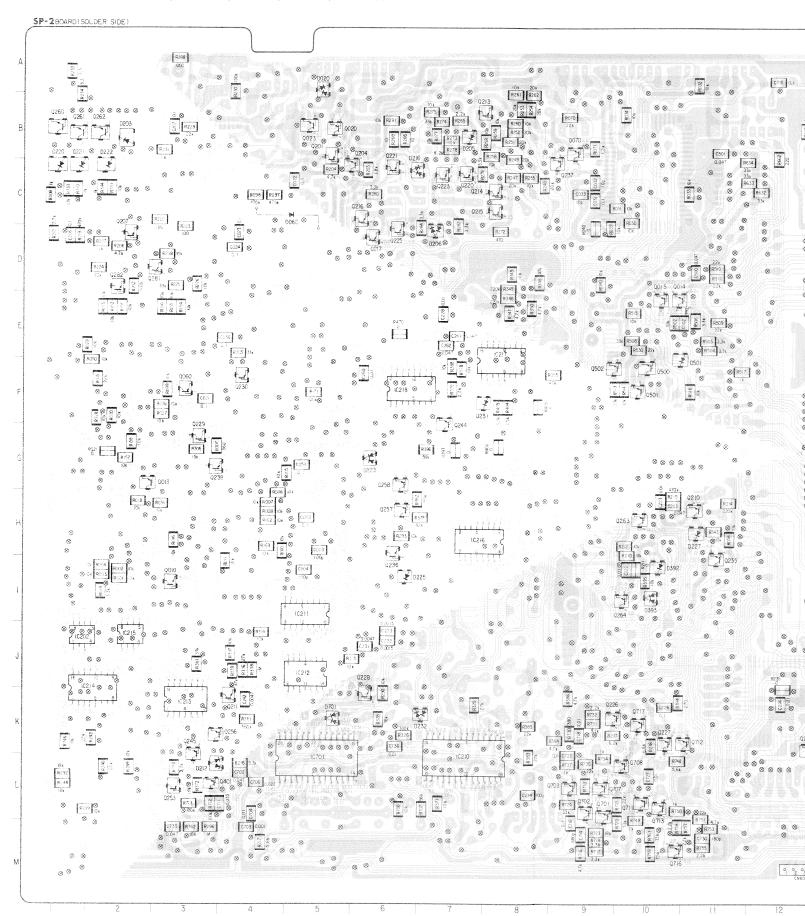
Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated. Parts face side: Parts on the parts face side seen from

(Component Side) the parts face are indicated.



SP-2(SERVO), RB-2(REEL STOP) PRINTED WIRING BOARDS

-Ref. No. SP-2 BOARD: 4,000 series, RB-2 BOARD: 14,000 series-



C-17 D-16 K-16 B-5 B-28 B-27 B-6 K-26 C-2 D-30 H-11 K-26 B-7 C-7 C-7 C-6 D-6

TP242 E-26 TP603 G-20 TP604 D-18 TP607 G-22 TP608 C-21 TP609 E-18

Q401 Q500 Q501 Q502 Q601 Q602 Q604 Q605 Q606 Q701 Q702 Q704 Q704 Q706 Q706 Q707 Q708

RV201 RV202 RV203

RV601 RV602 RV603 RV604 RV701

TP001 TP002

TP003 TP004 TP005 TP201

TP202 TP203 TP204

TP205 TP206 TP207 TP208

TP209 TP210 TP211 TP212 TP213 TP214 TP215 TP216 TP217 TP219 TP220

TP221 TP222 TP223 TP224

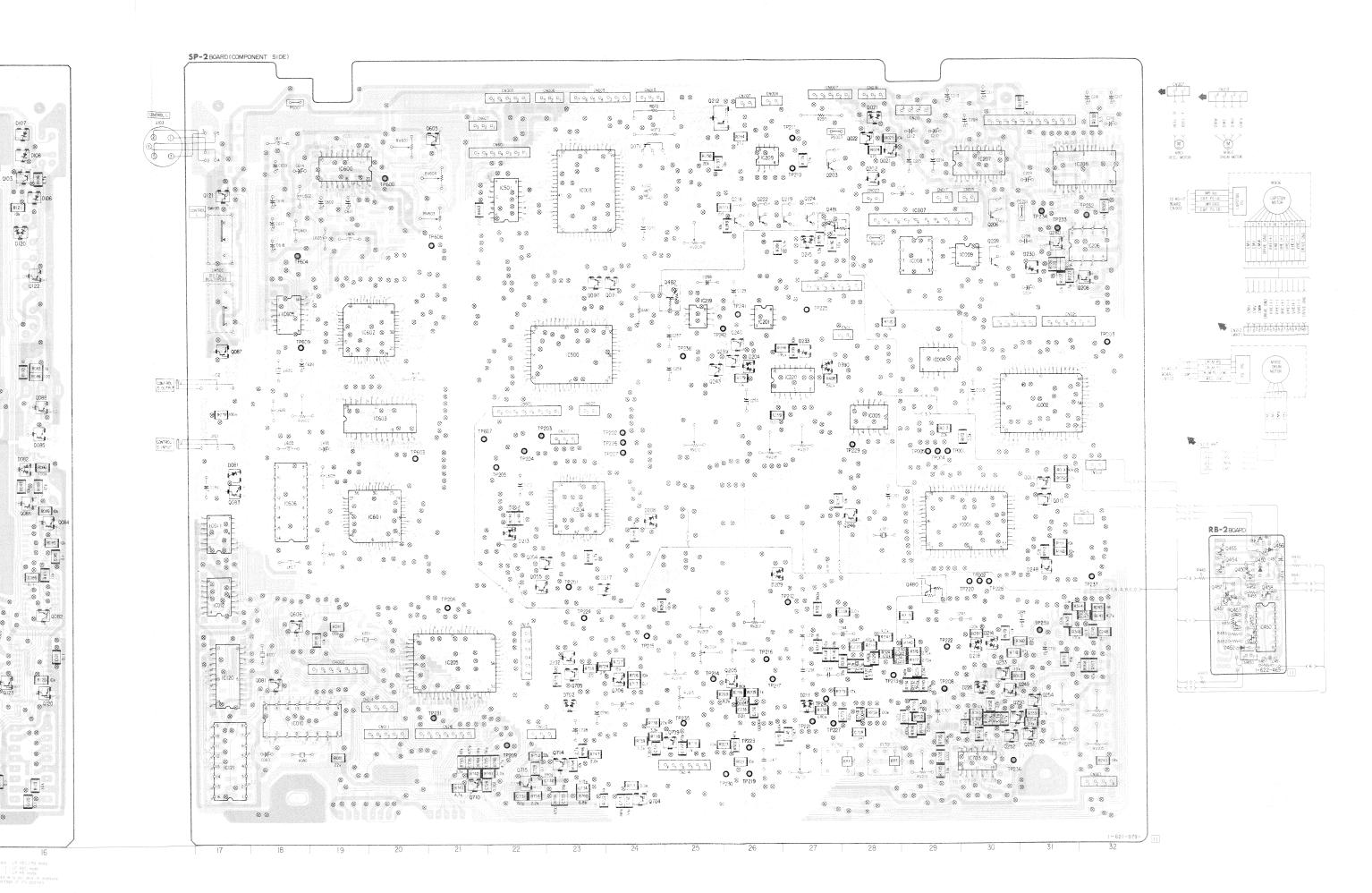
TP225 TP226 TP227

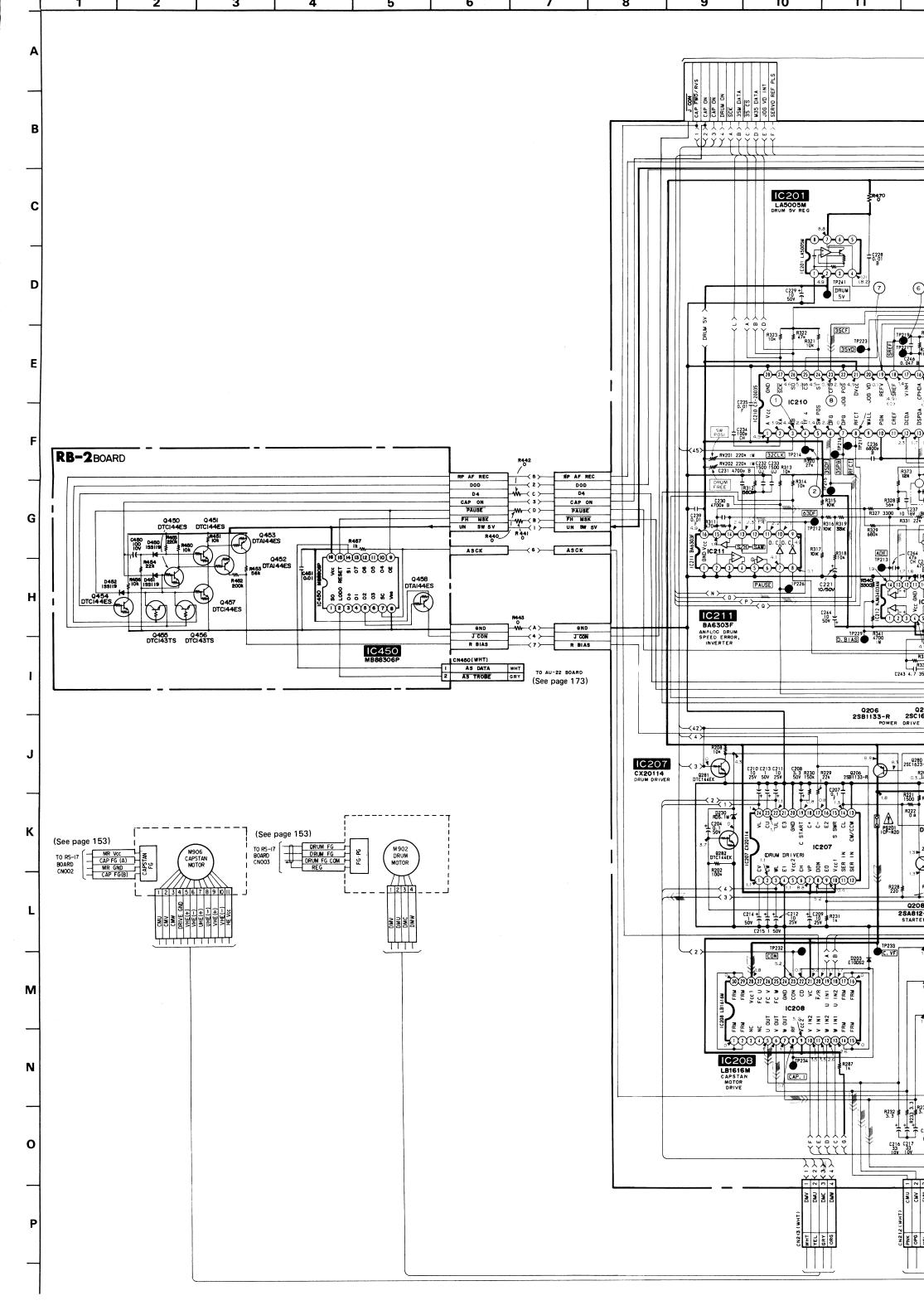
TP233 TP234 TP235 TP236 TP237 TP238 TP239 TP240 TP241

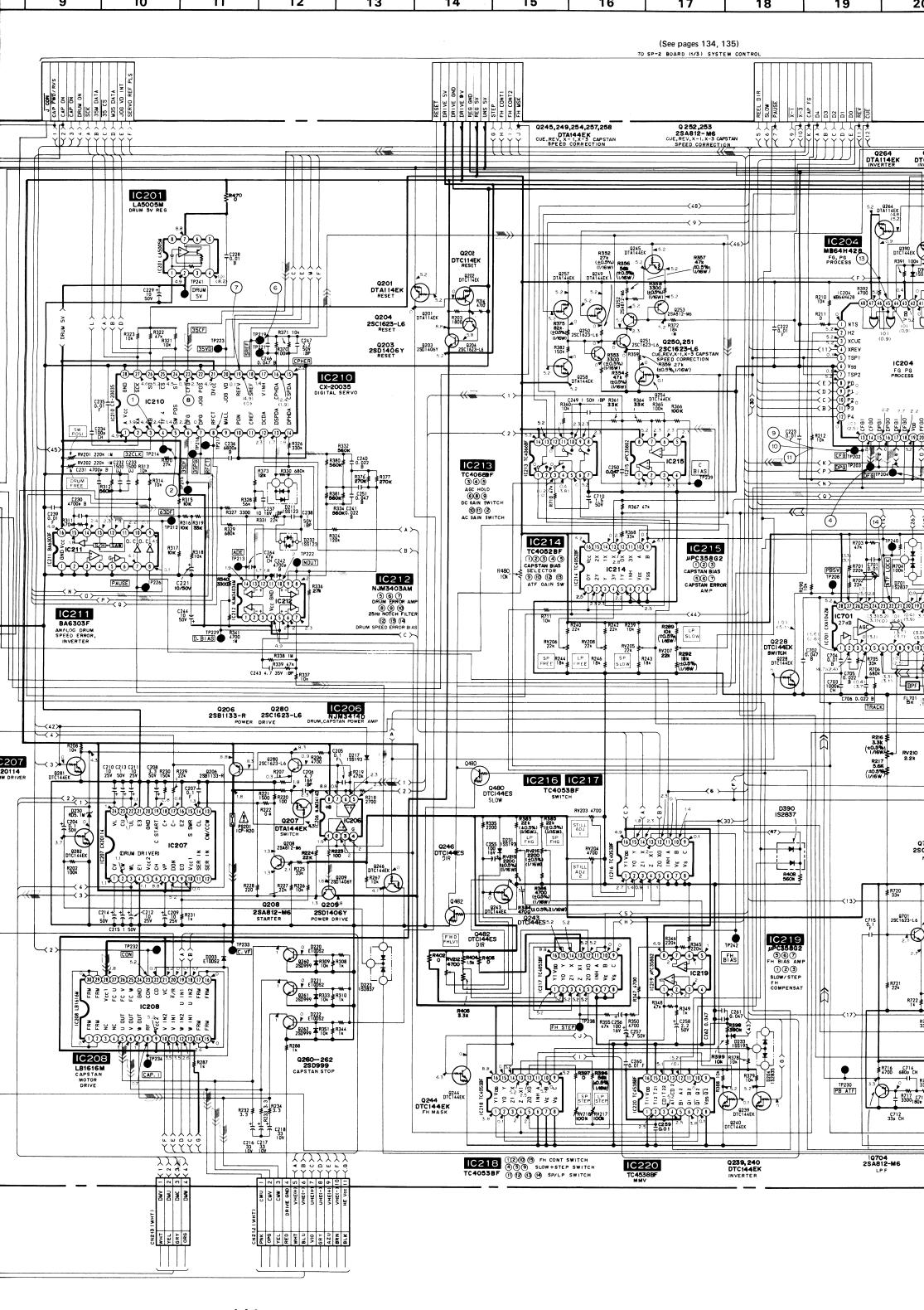
F-10 F-9 C-13 C-14 B-14 8-21 J-18 L-9

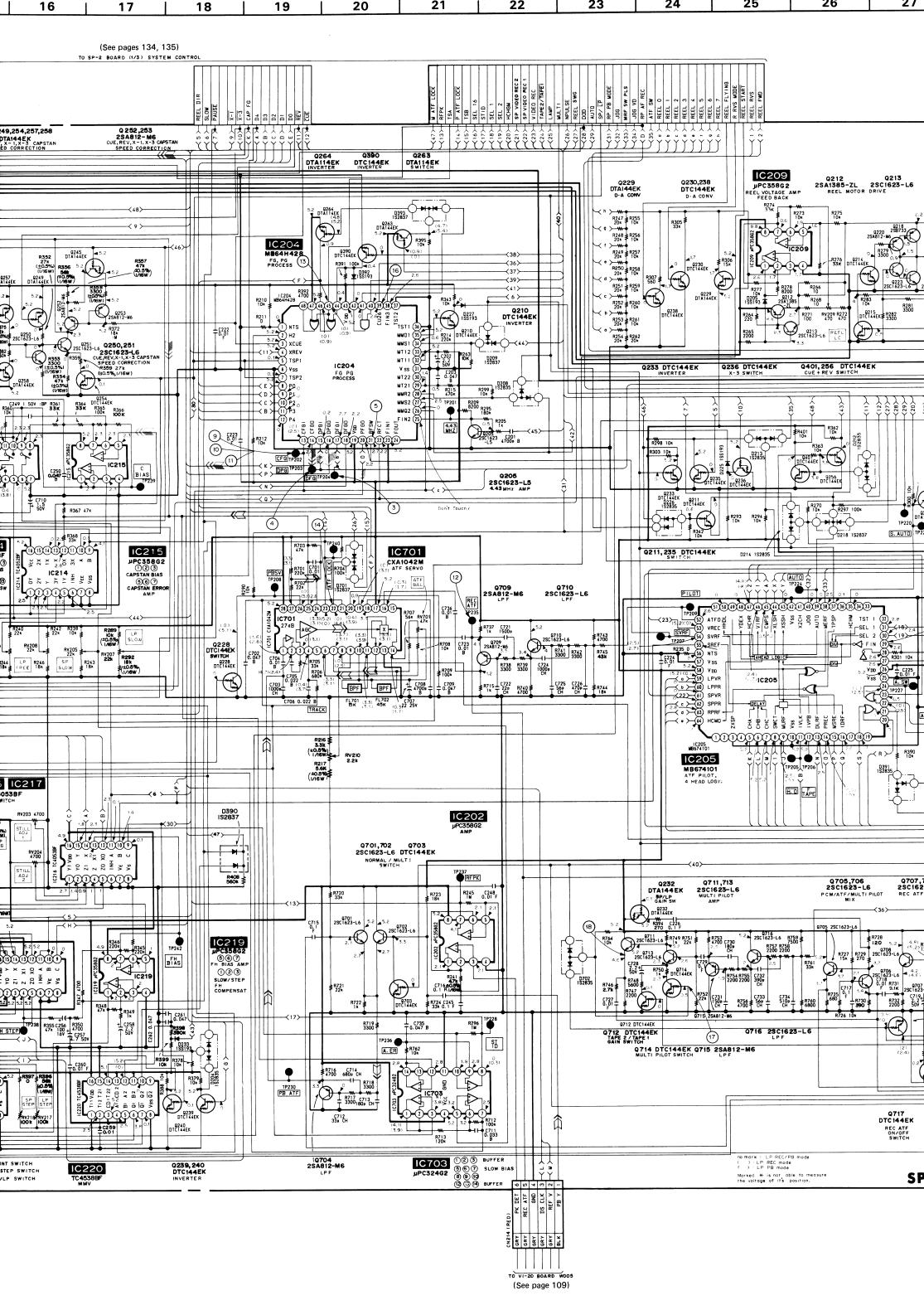


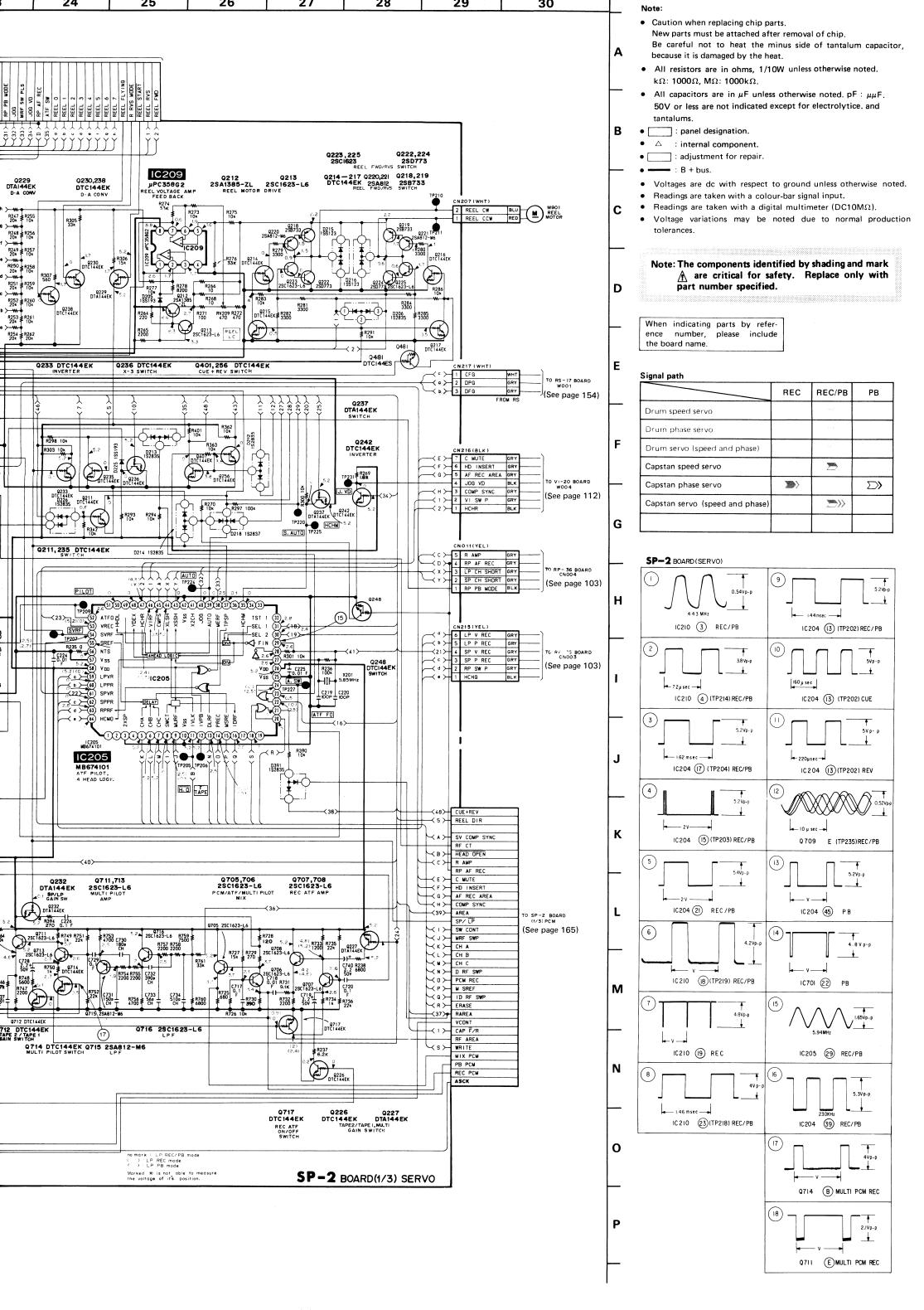










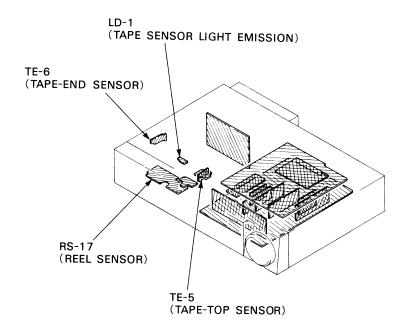


- O : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side,
- ⊗ : Through hole.
- Pattern from the side which enables seeing.
- Pattern of the rear side.
- : B+ pattern from the side which enables seeing.
- Digital transistor (RS-17:Q001,002,003) transistor with resistors.
 Refer to the RS-17 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

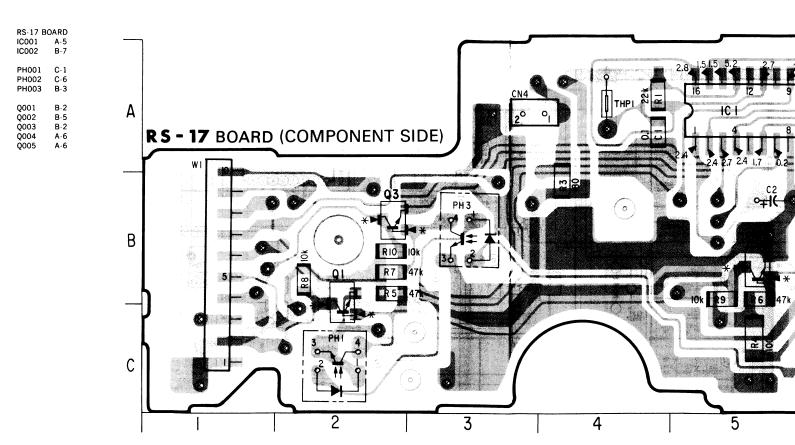
Caution:

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

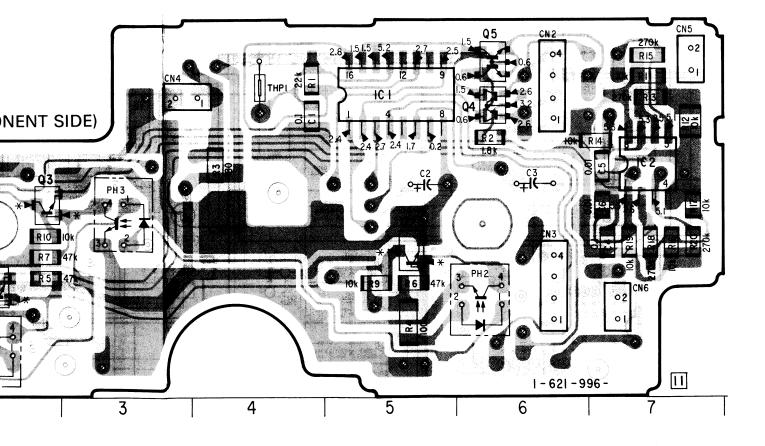


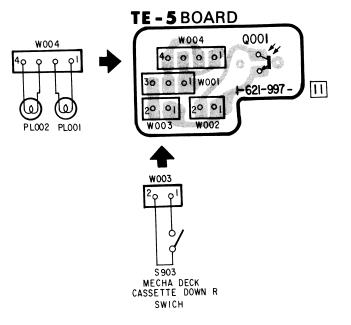
RS-17(REEL SENSOR), TE-5(TAPE-TOP SENSOR), TE-6(TAPE-END SENSOR), LD-1(TAPE SENSOR

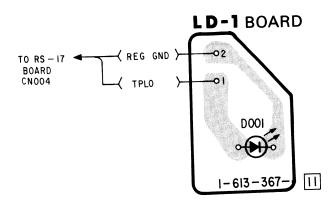
Ref. No. RS-17 BOARD: 5, 000 series, TE-5 BOARD: 5, 100 series, TE-6: 5, 200 series, LD-1 BOARD: 5, 300 series



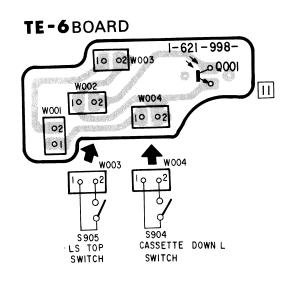
APE-TOP SENSOR), TE-6(TAPE-END SENSOR), LD-1(TAPE SENSOR LIGHT EMISSION) PRINTED WIRING BOARDS ies, TE-5 BOARD: 5, 100 series, TE-6: 5, 200 series, LD-1 BOARD: 5, 300 series—







no mark: LP REC/PB mode Marked * is not be able to measure the voltage of its position



IC001

RS-17

2

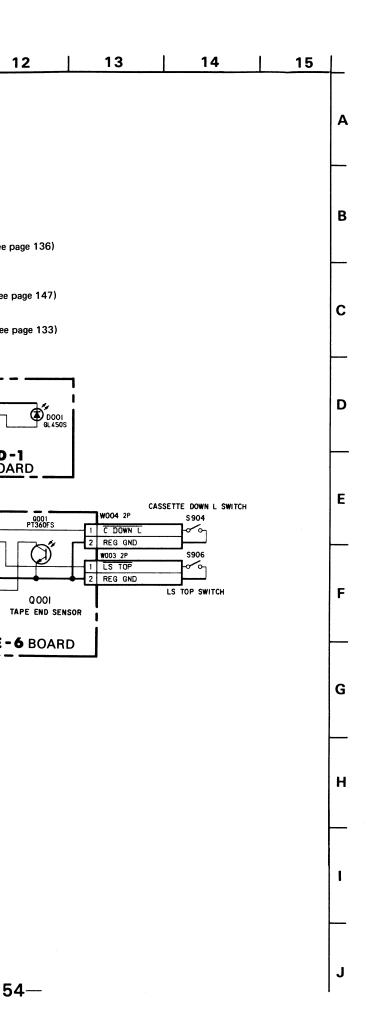
3__

2

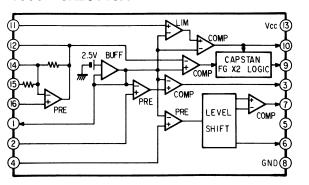
3

9

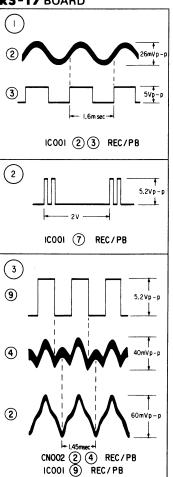
4



IC001 CX20115A



RS-17 BOARD



- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted. pF : $\mu \mu F$. 50V or less are not indicated except for electrolytice. and
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- --- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

• Signal path

	REC	REC/PB	РВ
Drum speed servo		**	
Drum phase servo		. ** *>	
Capstan servo (speed and phase)		>>>	

SP-2(PCM AUDIO PROCESS) PRINTED WIRING BOARD

Ref. No. SP-2 BOARD: 4,000 series

Note:

• O— : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

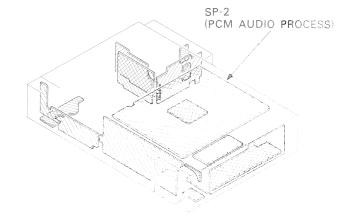
● ⊗ : Through hole.

• Pattern from the side which enables seeing.

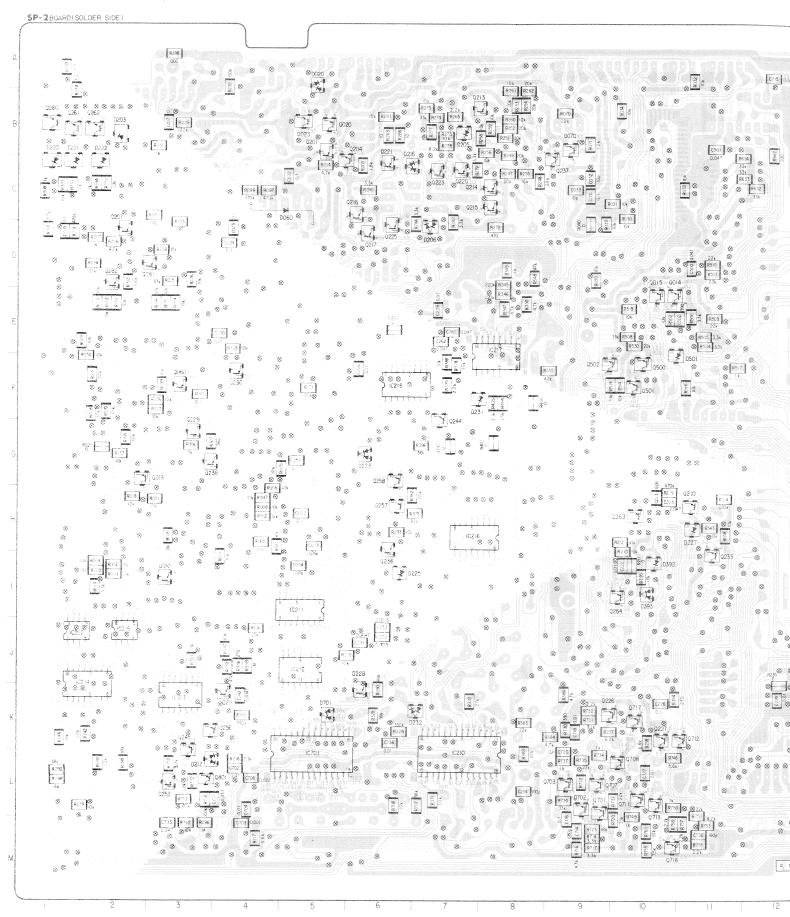
• Pattern of the rear side.

• B+ pattern from the side which enables seeing.

When indicating parts by reference number, please include the board name.



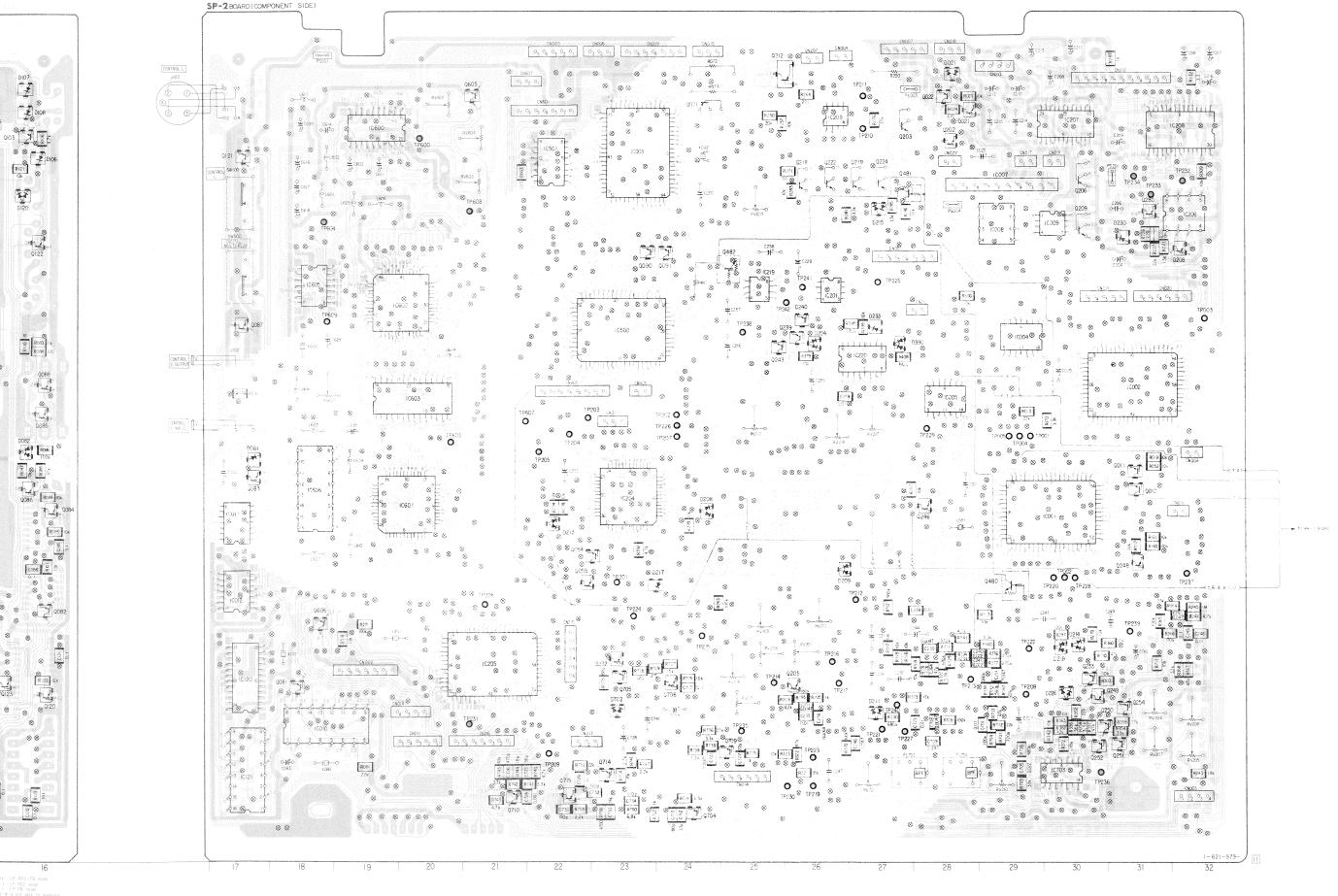
D025 A-5 D021 A-28 D060 C-4 D080 K-15 D081 G-17 D082 G-16 D106 C-16 D107 B-16 D100 C-16 D100 B-16 D120 C-16 D203 B-2 D204 F-26 D205 B-7 D206 D-7 D208 H-24 D209 H-26 D211 K-27 D212 L-3 D213 J-22 D214 J-30 D215 D-27 D216 C-6 D217 I-24 D218 K-30 D220 B-1 D221 B-1 D221 B-1 D221 B-1 D222 B-2 D223 G-6 D225 I-6 D226 K-30 D227 H-11 D230 D081	Q010 F3 Q011 H-31 Q012 H-31 Q013 G-3 Q014 D-10 Q015 D-10 Q020 B-5 Q021 B-28 Q022 B-28 Q022 B-28 Q023 B-5 Q054 I-22 Q055 I-22 Q060 F-3 Q070 B-9 Q071 B-24 Q081 K-18 Q082 J-16 Q082 J-16 Q085 G-16 Q085 G-16 Q085 G-16 Q086 H-16 Q086 H-16 Q087 E-17 Q088 F-16 Q090 D-23 Q091 D-24 Q103 B-16 Q121 C-17 Q122 D-16 Q123 K-16 Q201 B-5 S-16 Q201 B-5 C-16 Q20	Q401	
D231 F-7 D232 K-7 D233 E-27 D390 F-27 D391 J-14 D392 I-10 D501 F-11 D502 H-13 D600 B-13 D600 B-13 D600 H-14 D604 H-14 D604 H-14 D701 K-5 D702 K-23 HC001 H-30 HC002 F-31 HC003 C-23 HC004 F-29 HC005 F-28	Q202 B 28 Q203 B 27 Q204 B 6 Q205 K-26 Q206 C-30 Q207 C-2 Q208 D 32 Q209 D 30 Q210 H 11 Q211 K 4 Q212 A 26 Q213 B 7 Q214 C-7 Q215 C-7 Q215 C-7 Q215 C-7 Q216 C 6 Q217 D 6 Q218 C-26 Q219 C-27 Q220 C-7 Q221 B 6 Q221 B 6	RV206 K.31 RV207 L.31 RV208 L.32 RV209 D.25 RV210 M.29 RV212 G.25 RV215 K.25 RV216 K.25 RV217 G.27 RV218 G.27 RV219 G.26 RV601 B.20 RV602 F.18 RV603 C.21 RV604 B.21 RV701 M.27 TP001 G.29 TP002 L.30 TP004 G.29 TP005 G.29	
10007 0.29 10008 0.29 10008 0.29 10008 0.29 10009 0.30 10010 1.48 10011 1.47 10012 1.47 10012 1.47 10012 1.47 10020 1.47 1.4	Q223	TP201 1.23 TP202 G.24 TP203 G.22 TP204 G.22 TP206 G.22 TP206 J.21 TP207 G.24 TP208 K.29 TP209 L.22 TP210 B.27 TP211 B.27 TP211 B.27 TP212 J.27 TP212 J.27 TP215 K.28 TP216 K.26 TP217 K.26 TP217 K.26 TP218 L.27 TP219 M.26 TP219 J.27 TP220 J.30 TP221 L.27 TP222 J.29 TP224 J.23 TP225 E.27 TP228 L.30 TP227 L.27 TP228 L.30 TP228 L.30 TP229 G.28 TP230 M.26 TP231 L.21 TP232 C.32 TP233 C.31 TP234 C.31 TP235 L.25 TP236 M.30 TP237 L.27 TP238 E.25 TP238 E.25 TP239 J.31 TP240 K.27	



-Ref. No. SP-2 BOARD: 4,000 series-

TP242 E-26
TP603 G-20
TP604 D-18
TP607 G-22
TP608 C-21
TP609 E-18

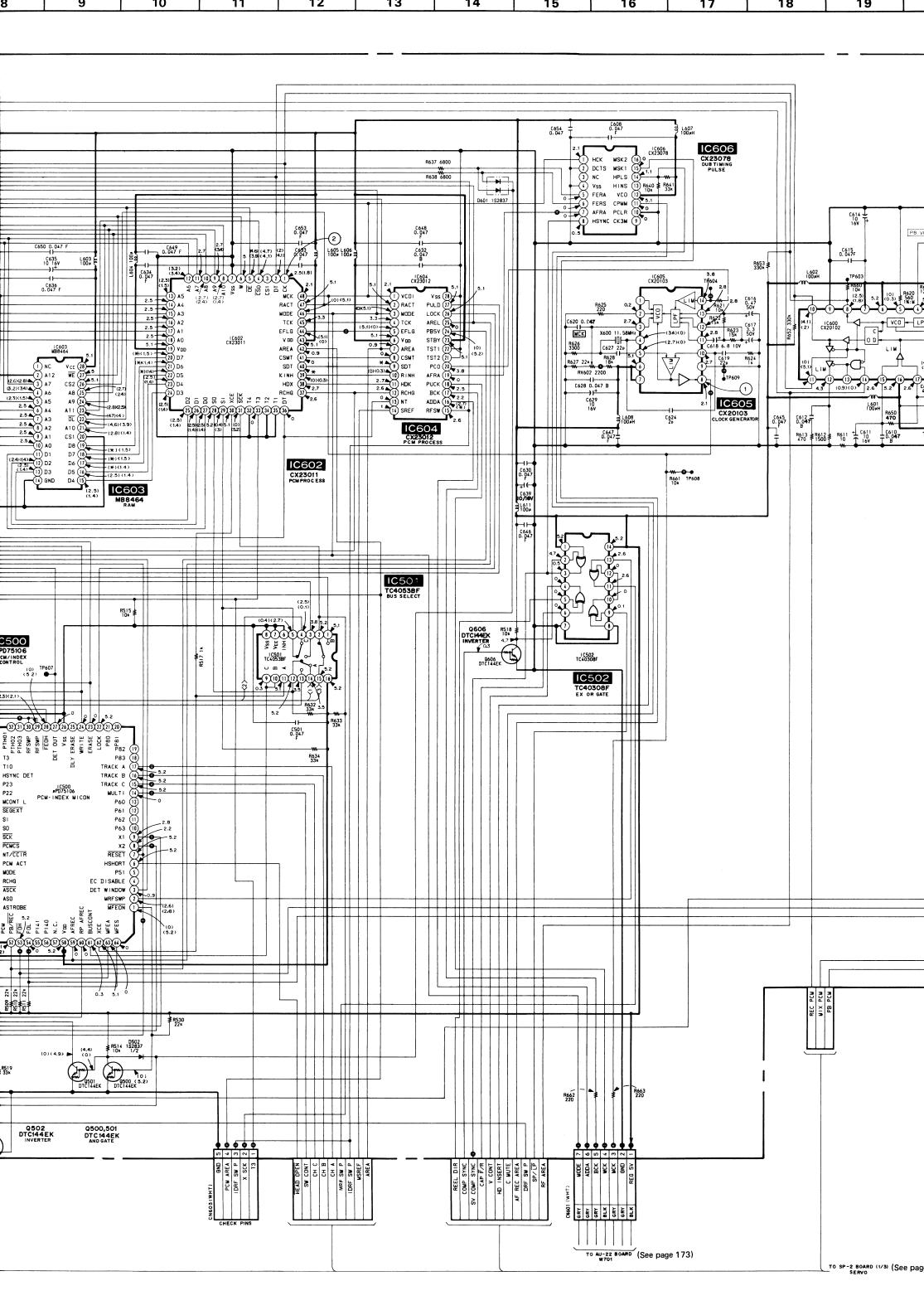
	SP-2 BOARD (COMPONENT SIDE)
₹28	
	DIG7.
260 Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø	JIOS JIOS JIOS JIOS JIOS JIOS JIOS JIOS
	2 Dios
	© 0103 → 3 = 3 = 3 = 3 = 3 = 3 = 3 = 3 = 3 =
	PRIZ
6 000 00 00 00 00 00 00 00 00 00 00 00 0	0/20 C(6) C(6) C(6) C(6) C(6) C(6) C(6) C(6)
	33
	C122 S S S S S S S S S S S S S S S S S S
	1 m 8 m 4 m 4 m 6 m 6 m 6 m 6 m 6 m 6 m 6 m 6
	© 17609
	© [6:3] .
	8 0088 8 0088 8 0088 8 0088 8 0088 8 0088 8 0088 8 0088
	S 8 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	S 0061 S S S S S S S S S S S S S S S S S S S
	0086 REVENUE 0086
236 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	0606 js 0606 j
	8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 120 8 8 8 8 8 100 8 8 100 8 8 100 100 8 8 100 100
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	

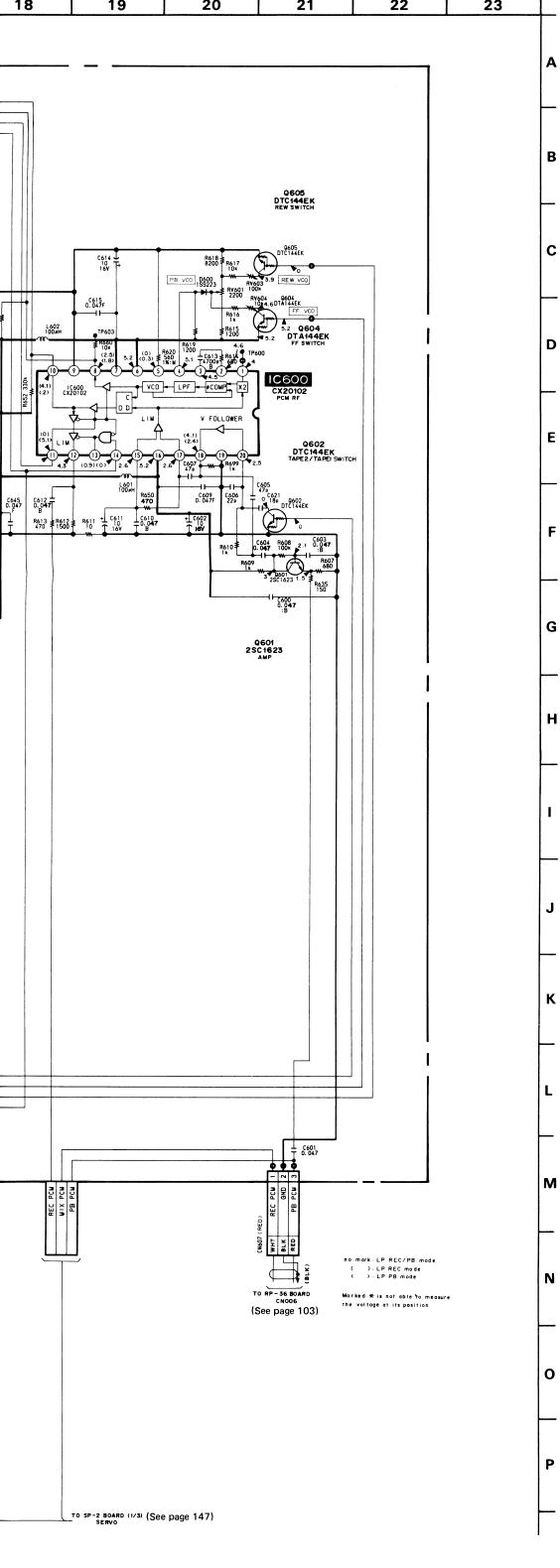


-161-

PCM AUDIO PCM AUDIO

-162-



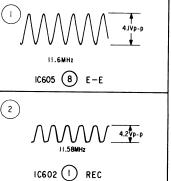


- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted. pF: μμF.
 50V or less are not indicated except for electrolytice. and tantalums.
- _____: panel designation.
- △ : internal component.
- _____: adjustment for repair.
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances

When indicating parts by reference number, please include the board name.

• Signal path





AU-22(AUDIO) PRINTED WIRING BOARD

Ref. No. AU-22 BOARD: 7,000 series

Note:

— : indicates a lead wire mounted on the component side.

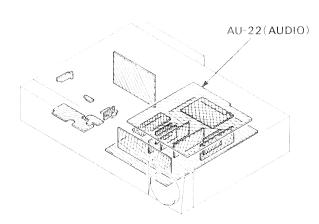
• • : indicates a lead wire mounted on the printed side.

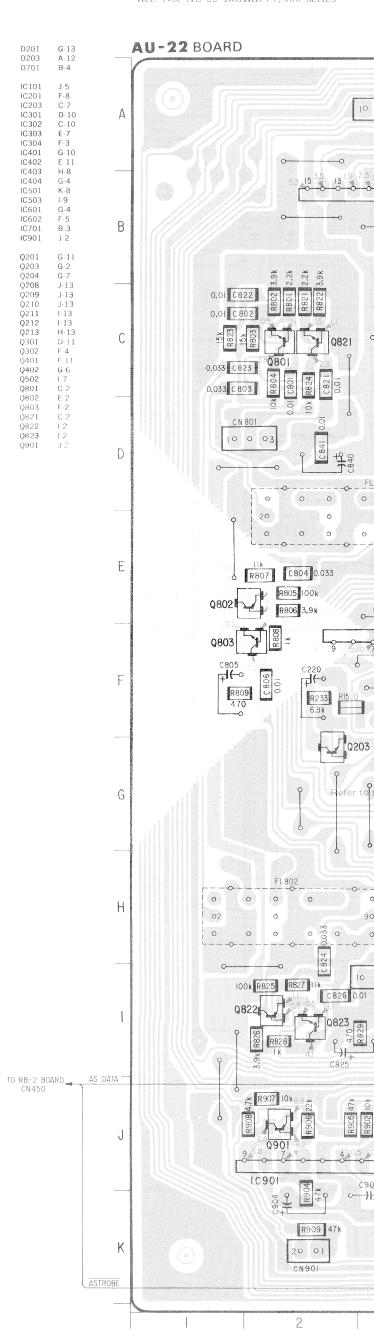
soldering side.B+ Pattern.

 Digital transistor (AU-22:Q201,Q204,Q502) transistor with resistors.

Refer to the AU-22 board schematic diagram for digital transistor.

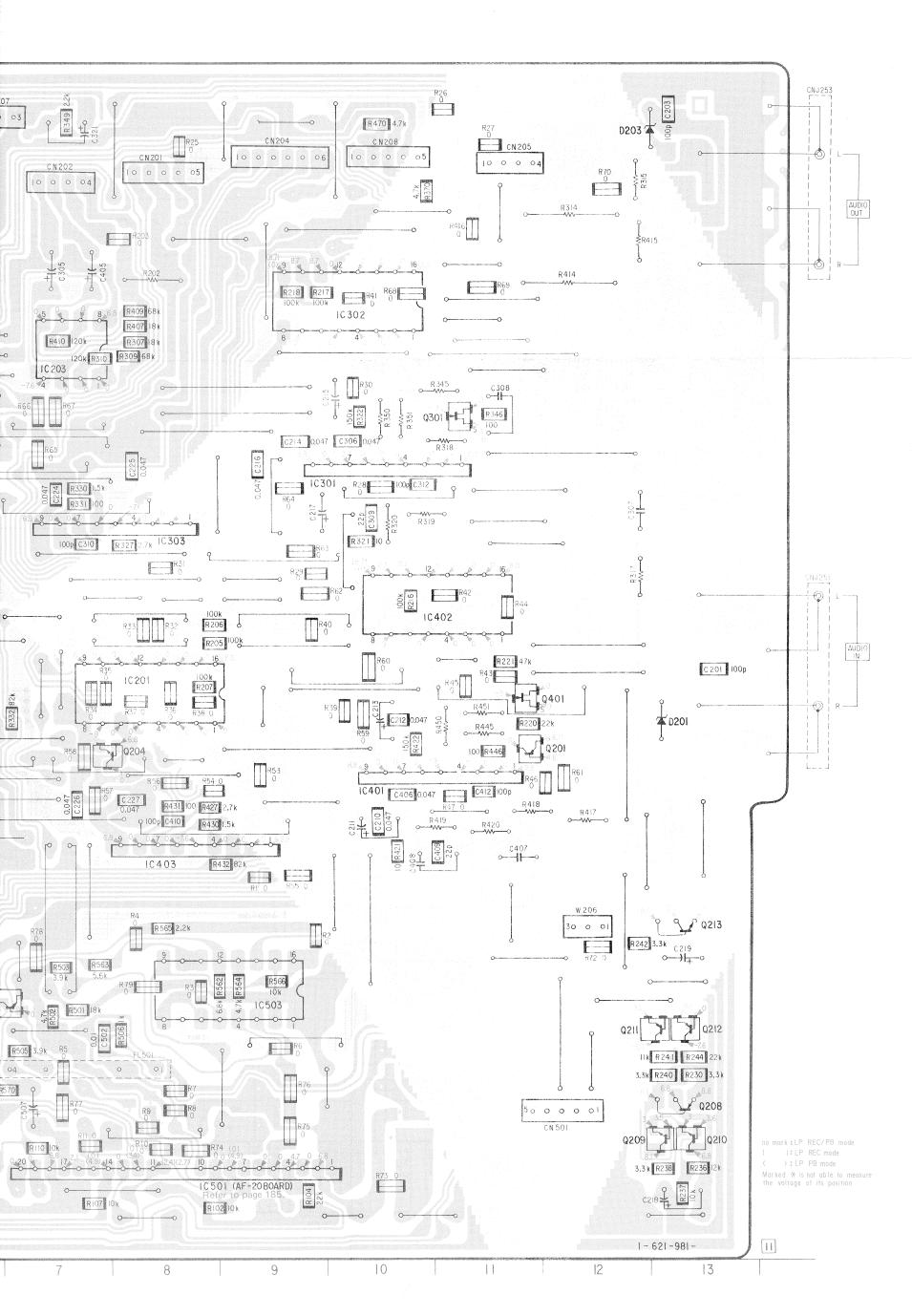
When indicating parts by reference number, please include the board name.

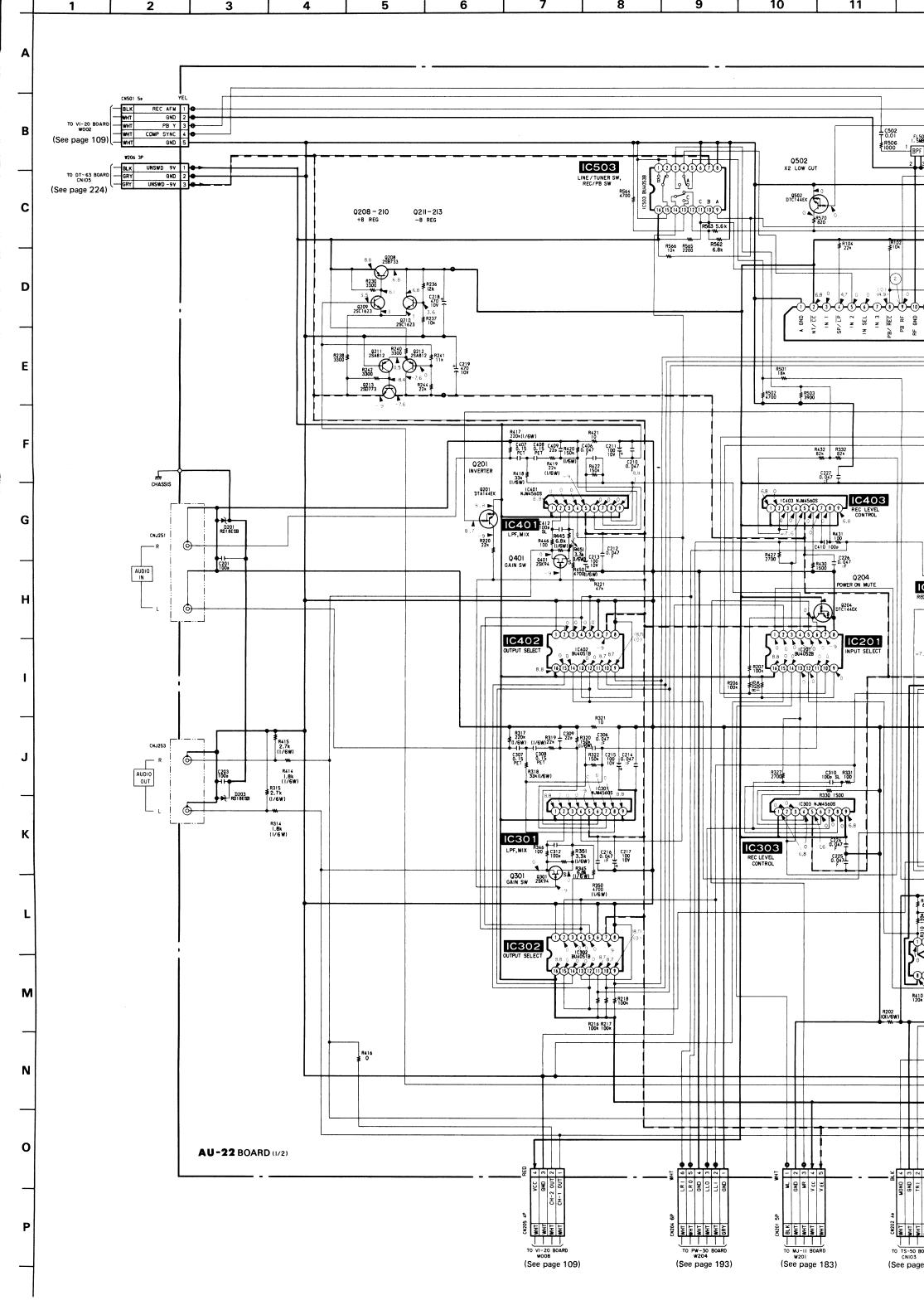


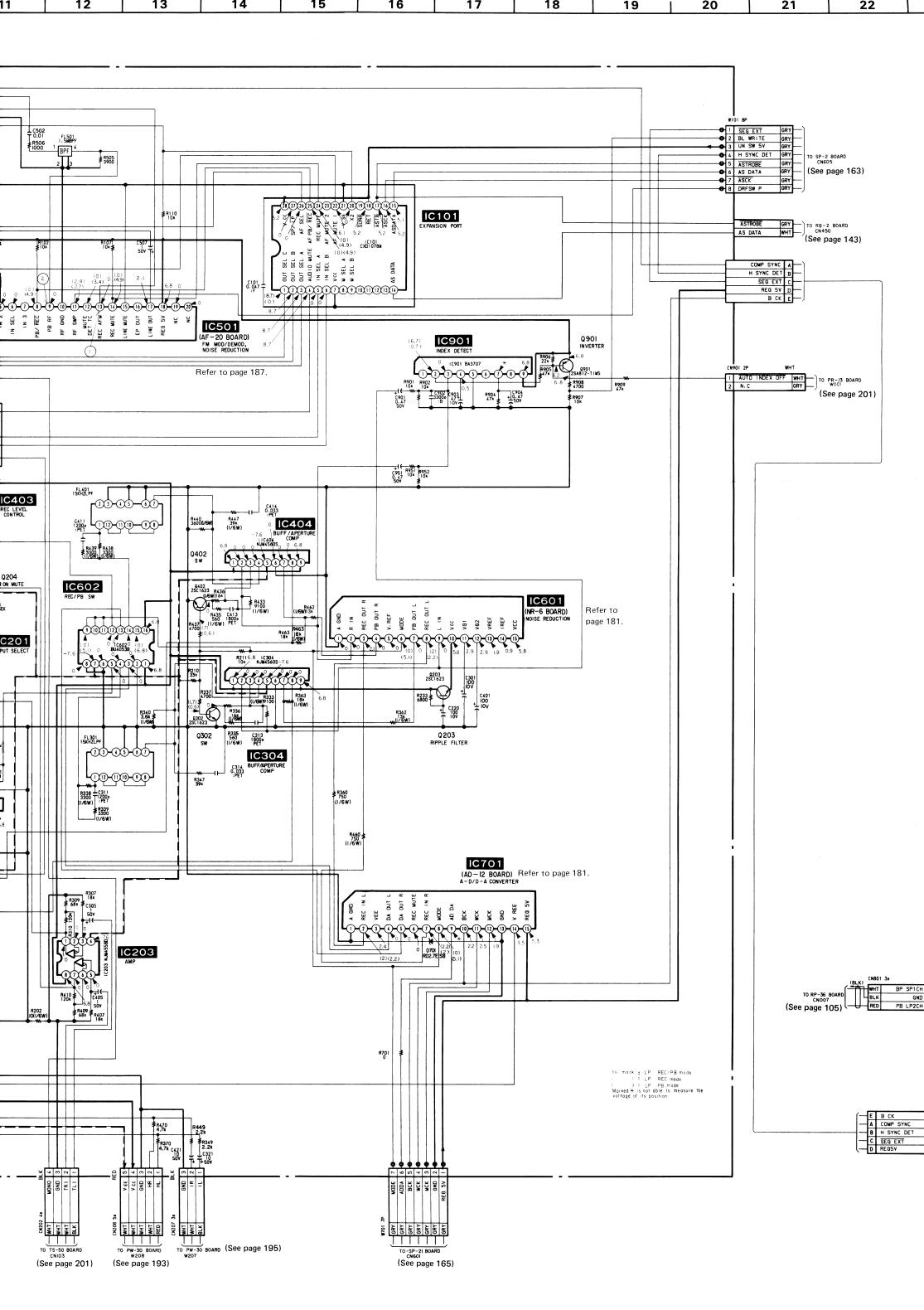


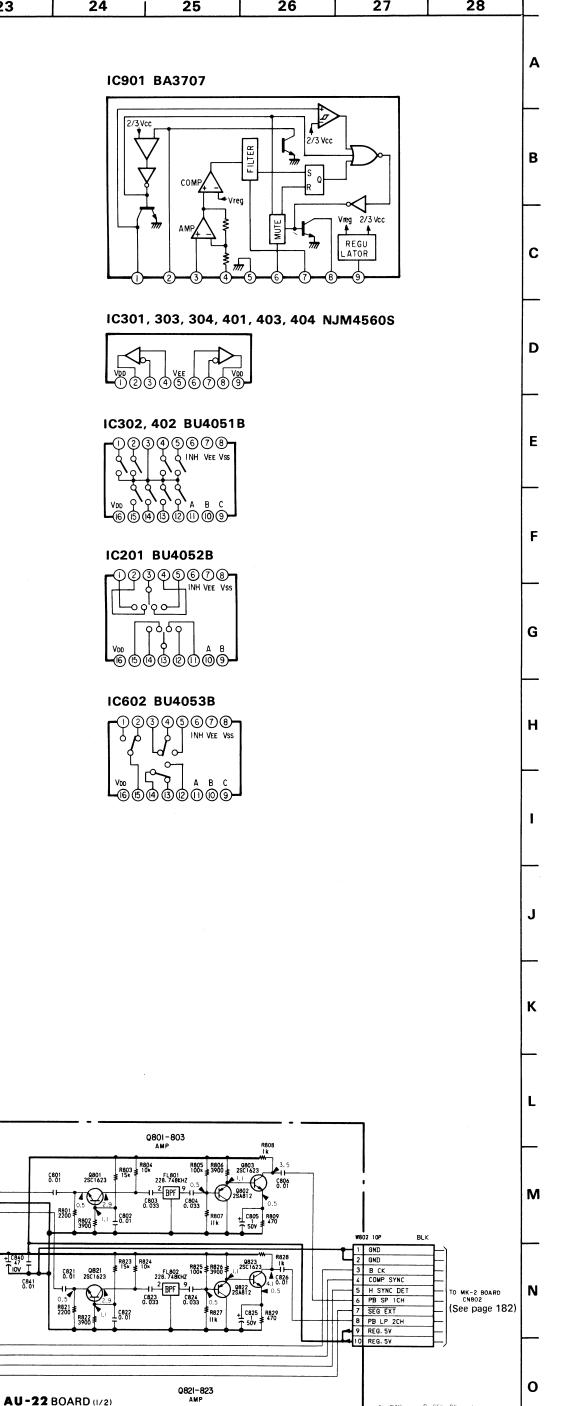
Ref. No. AU-22 BOARD: 7,000 series











no mark . LP REC PB mode

Ρ

22

ige 143)

R-13 BOARD e page 201)

0ARD (BLK) (RBLK) (BLK) (BLK) (BLK) (BRD 2) (BLK) (BLK) (BRD 2) (BLK) (B

E B CK A COMP SYNC B H SYNC DET C SEG EXT
D REGSV

+1C840 1 Tiov I

23

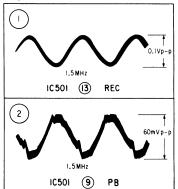
Note:

- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted. pF: $\mu \mu F$. 50V or less are not indicated except for electrolytice. and
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : panel designation.
- △ : internal component.
- : B + bus.
- --- : B bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production

When indicating parts by reference number, please include the board name.

Signal path

AU-22 BOARD



• O- : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

● ⊗ : Through hole.

 \bullet $\ensuremath{\square}$: Pattern from the side which enables seeing.

Pattern of the rear side.

: B+ pattern from the side which enables seeing.

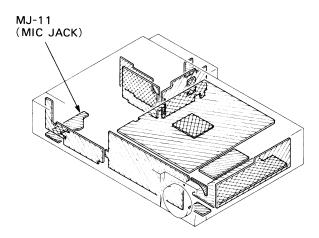
When indicating parts by reference number, please include the board name.

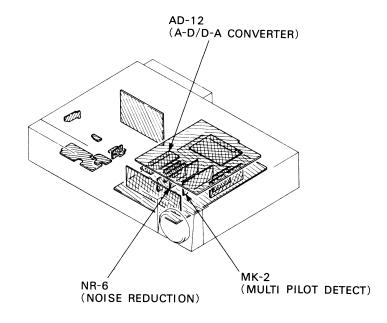
Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side)

the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



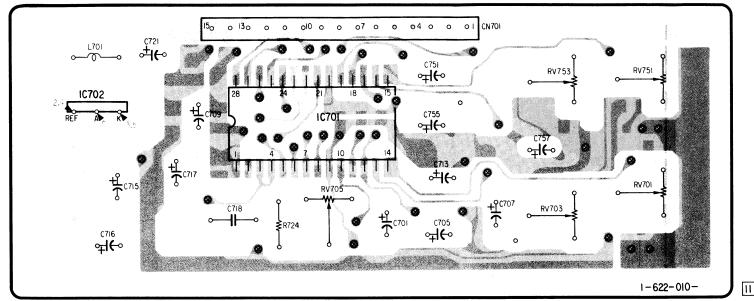


AD-12(A-D/D-A CONVERTER), NR-6(NOISE REDUCTION), MK-2(MULTI PILOT DETECT), MJ-11(MIC JACK) PRINTED WIRING BOARDS

-Ref. No. AD-12 BOARD, NR-6 BOARD, MK-2 BOARD, MJ-11 BOARD: 8,000 series-

IC701

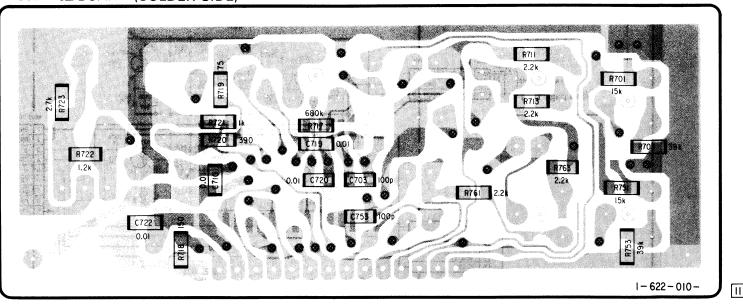
AD -12 BOARD (COMPONENT SIDE)



no mark: LP REC/PB muce

IC701

AD - 12 BOARD (SOLDER SIDE)



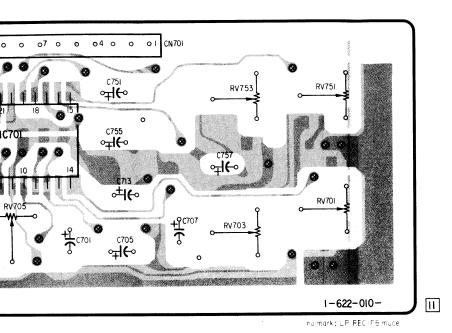
IC601 NR - 6 BC

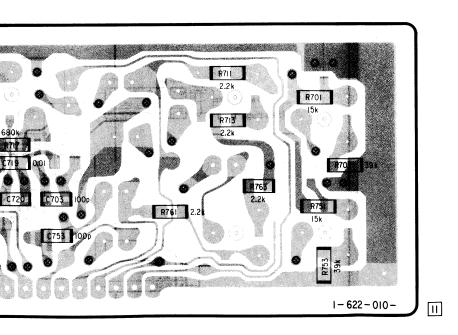
IC601

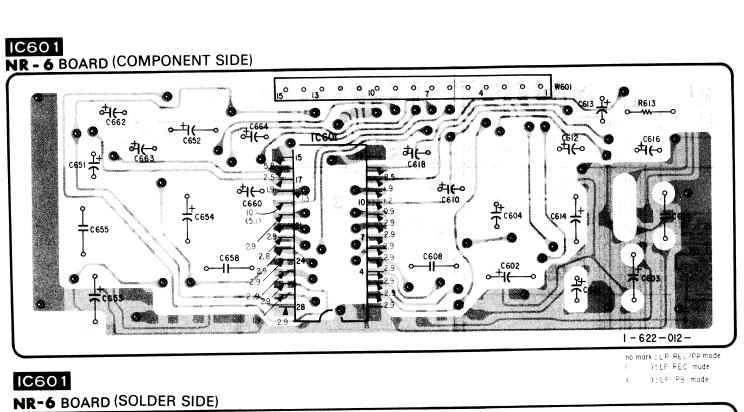
NR-6 B

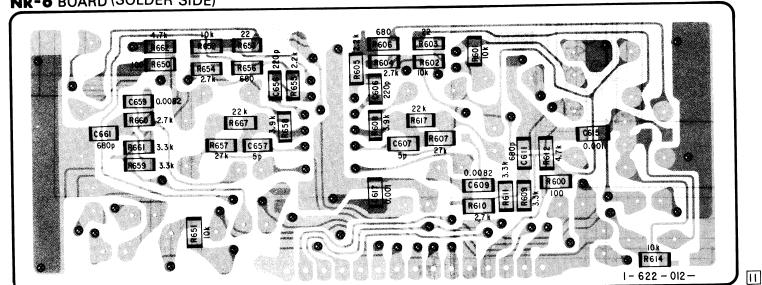
UCTION), MK-2(MULTI PILOT DETECT), MJ-11(MIC JACK) PRINTED WIRING BOARDS

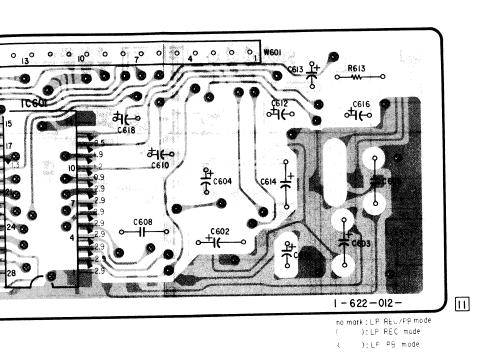
J-11 BOARD: 8,000 series—

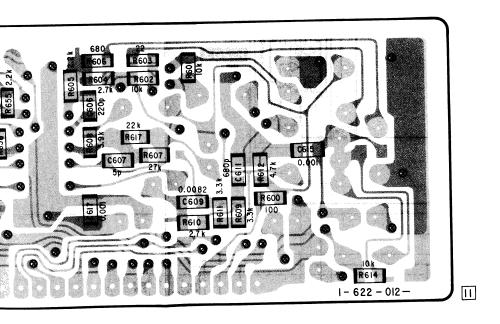


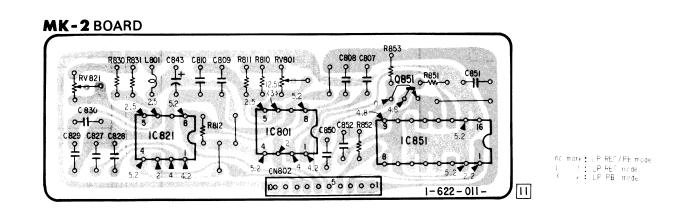


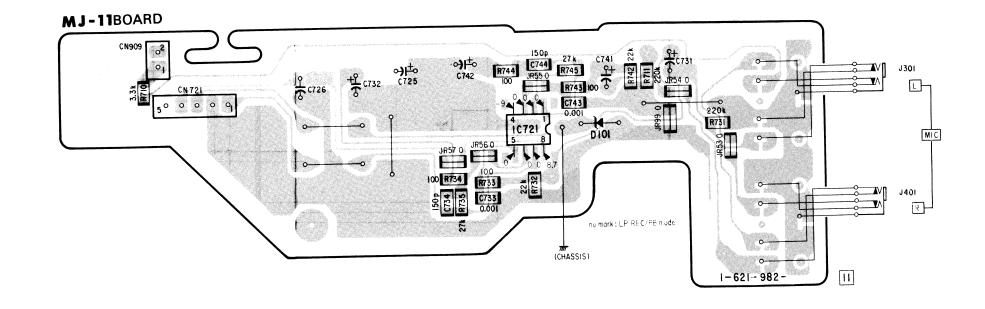


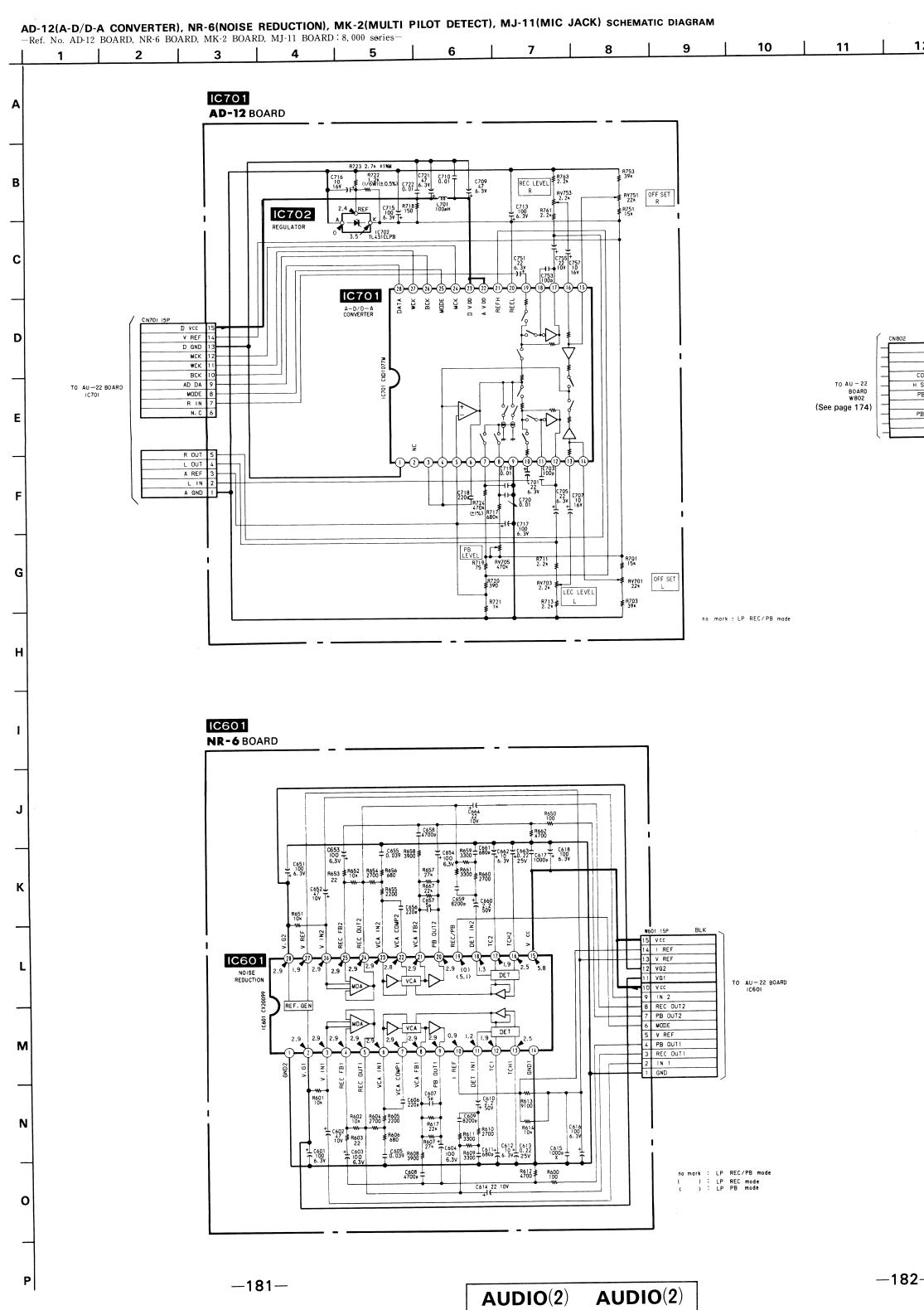


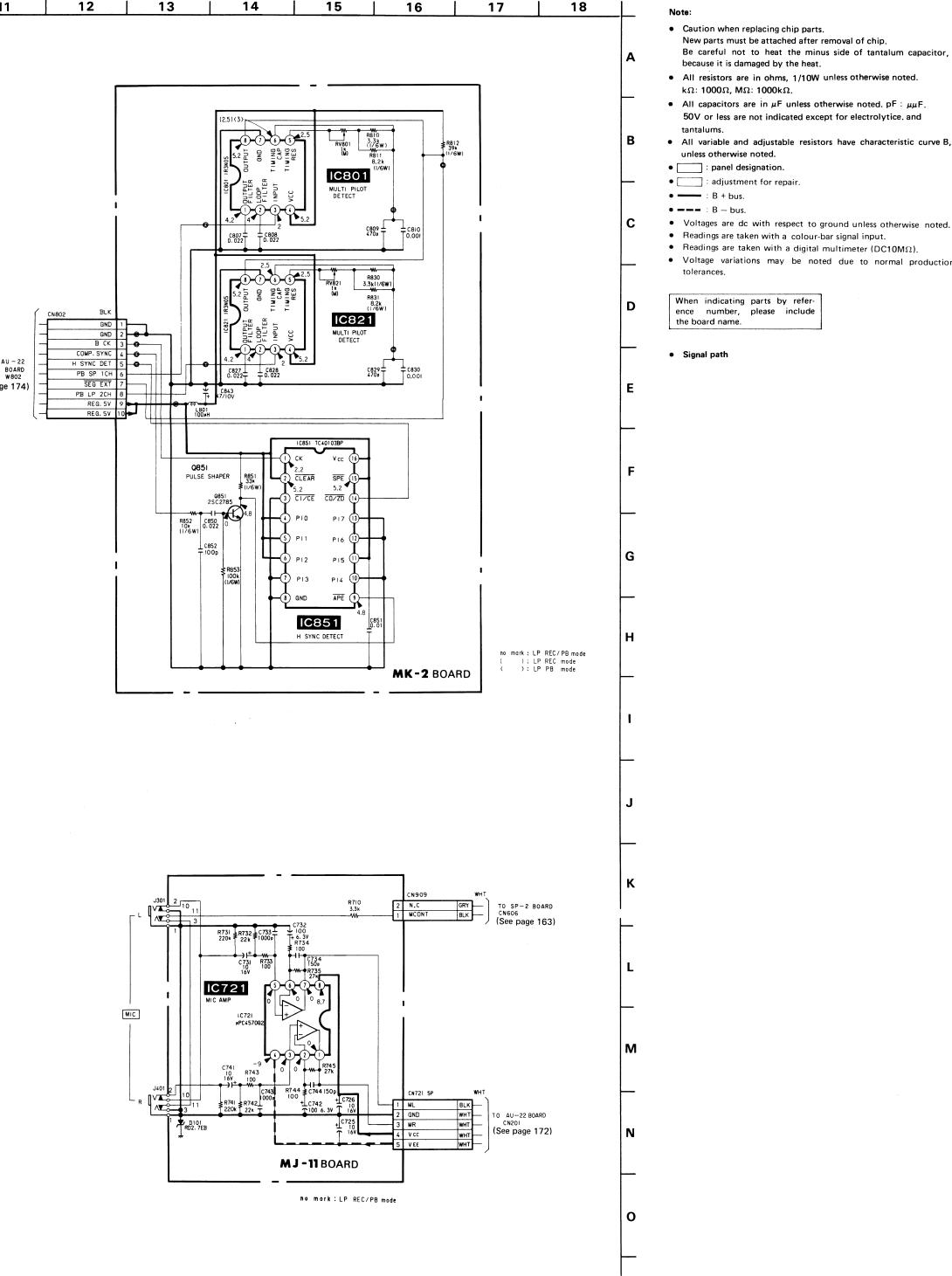












Be careful not to heat the minus side of tantalum capacitor,

• All resistors are in ohms, 1/10W unless otherwise noted.

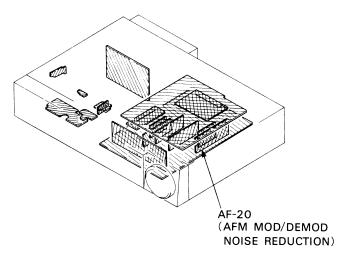
All capacitors are in μF unless otherwise noted. pF: $\mu \mu F$. 50V or less are not indicated except for electrolytice, and

• All variable and adjustable resistors have characteristic curve B,

- Voltage variations may be noted due to normal production

- O : indicates a lead wire mounted on the component side.
- • : indicates a lead wire mounted on the printed side.
- soldering side.
- Pattern of conductor and silver ilectrode of soldering side.
- B+ Pattern.
- Digital transistor (AF-20:Q501,Q503) transistor with resistor refer to the AF-20 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

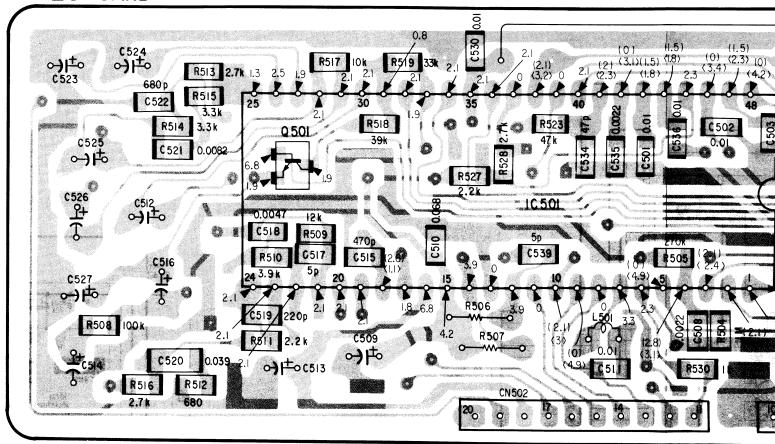


AF-20(AFM MOD/DEMOD NOISE REDUCTION) PRINTED WIRING BOARD

-Ref. No. AF-20 BOARD: 8,000 series-

IC501

AF-20 BOARD



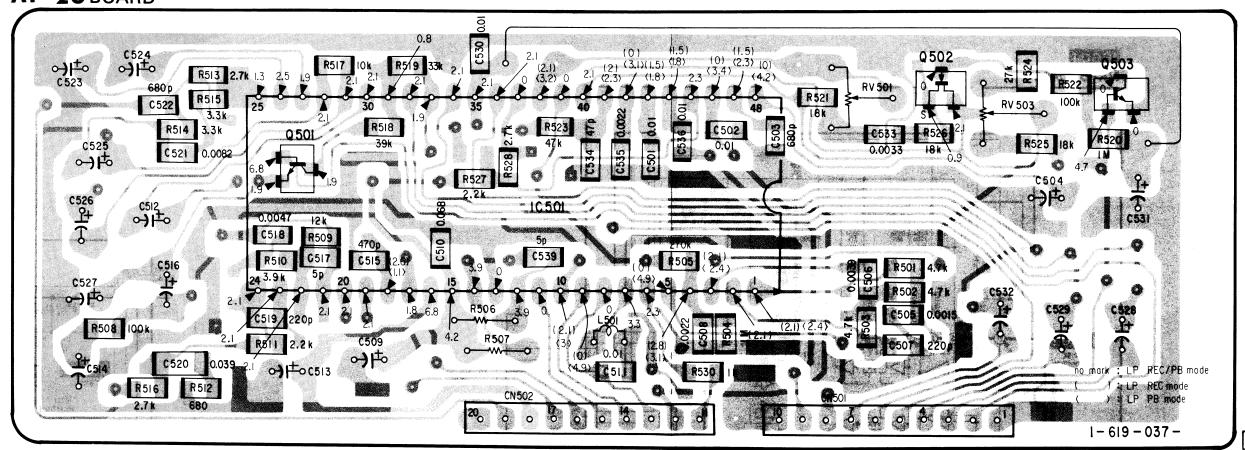
AF-20(AFM MOD/DEMOD NOISE REDUCTION) PRINTED WIRING BOARD

-Ref. No. AF-20 BOARD: 8,000 series-

IC501

tor refer

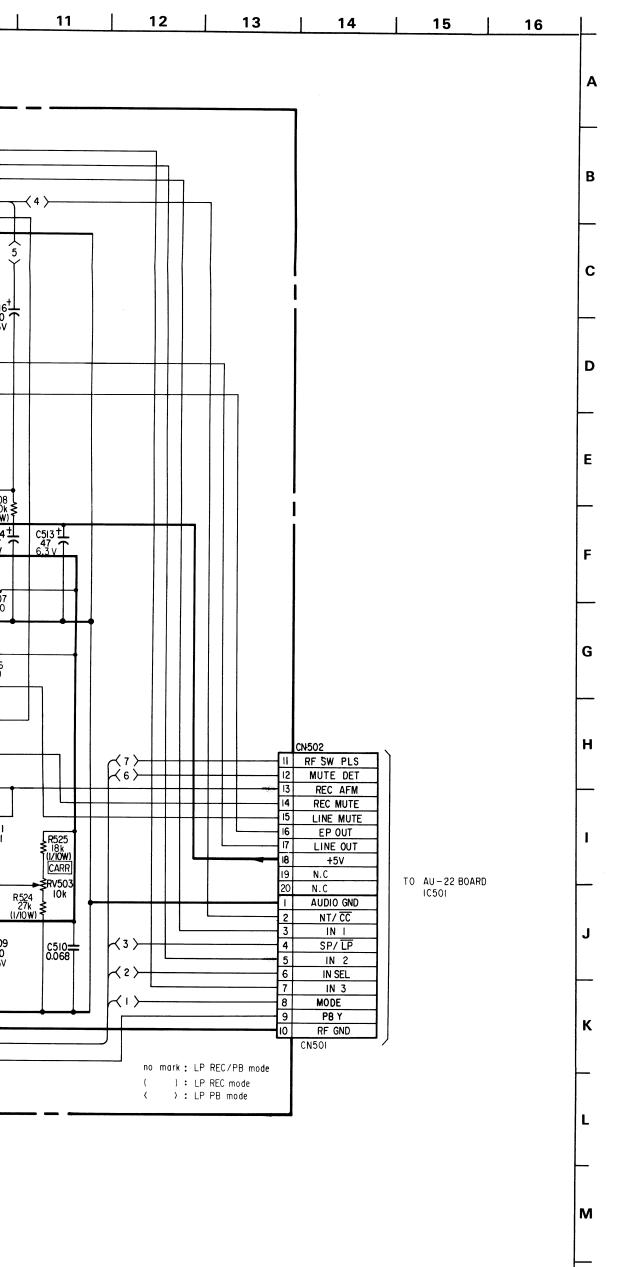
AF-20 BOARD



13

—186—

M



- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000 $k\Omega$.
- All capacitors are in μF unless otherwise noted. pF: μμF.
 50V or less are not indicated except for electrolytice. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- _____: adjustment for repair.
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

Signal path

• O- : indicates a lead wire mounted on the component side.

• • - : indicates a lead wire mounted on the printed side.

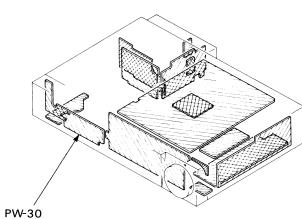
ullet \otimes : Through hole.

soldering side.

component side

B+ Pattern.

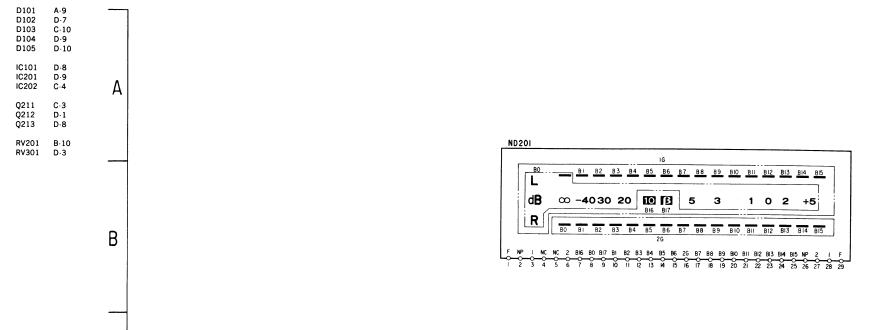
When indicating parts by reference number, please include the board name.

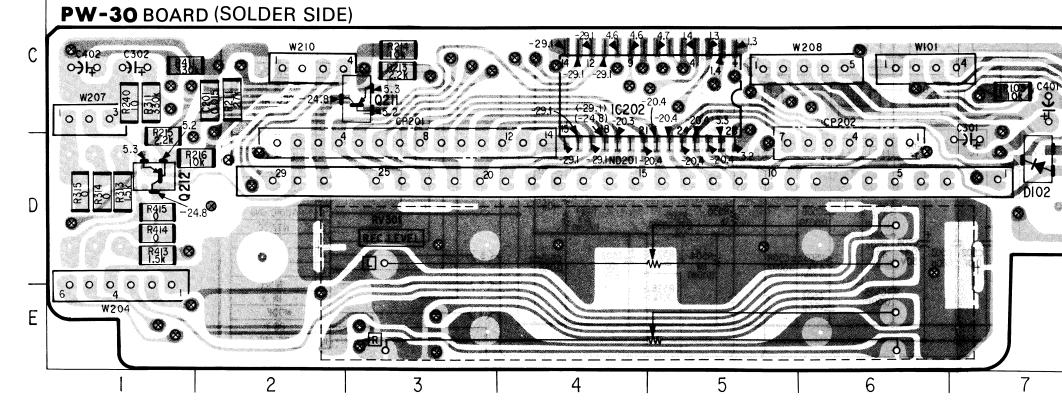


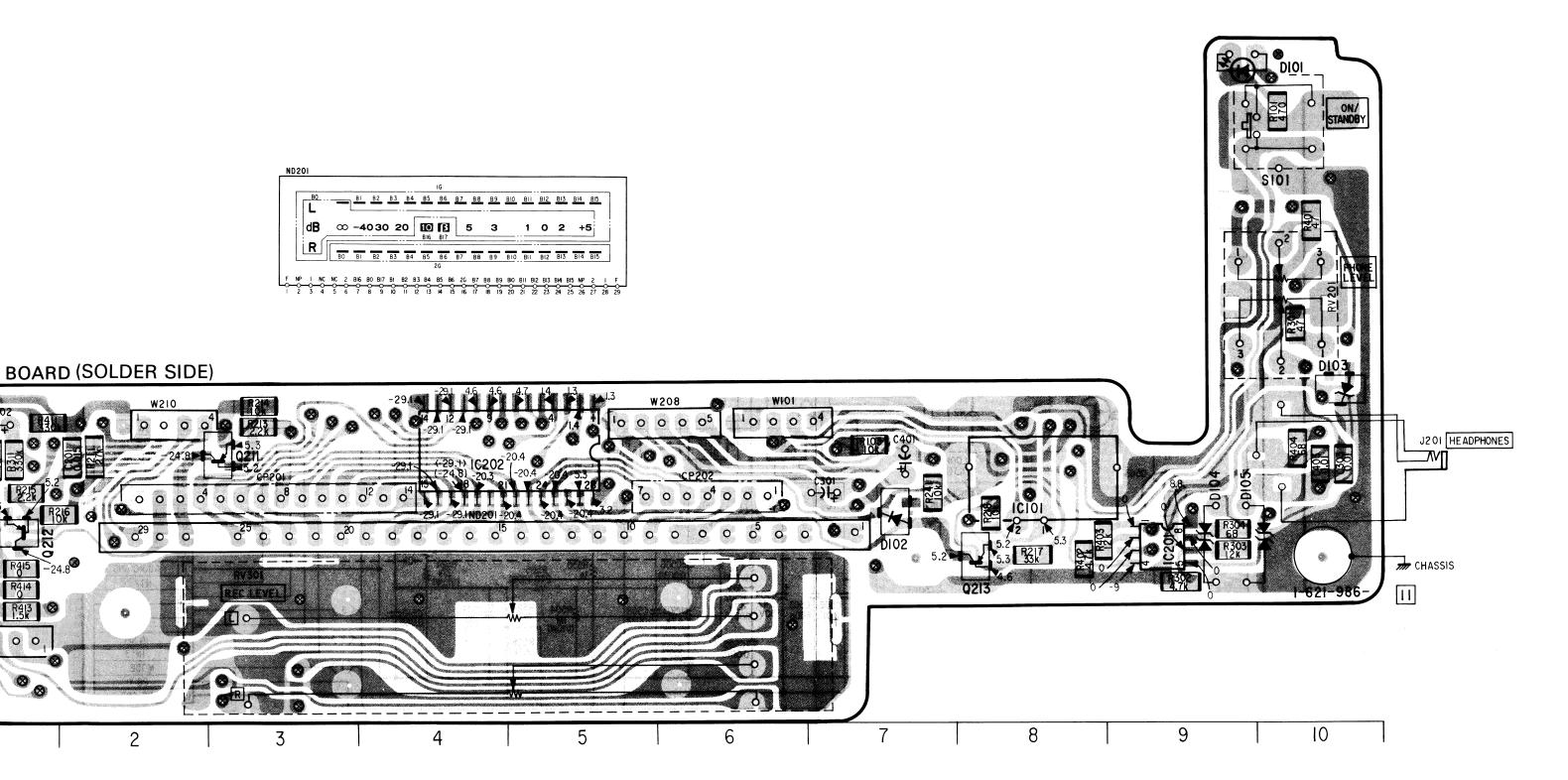
(LEVEL METER/VOLUME/JACK/ REMOTE CONTROL RECEIVER)

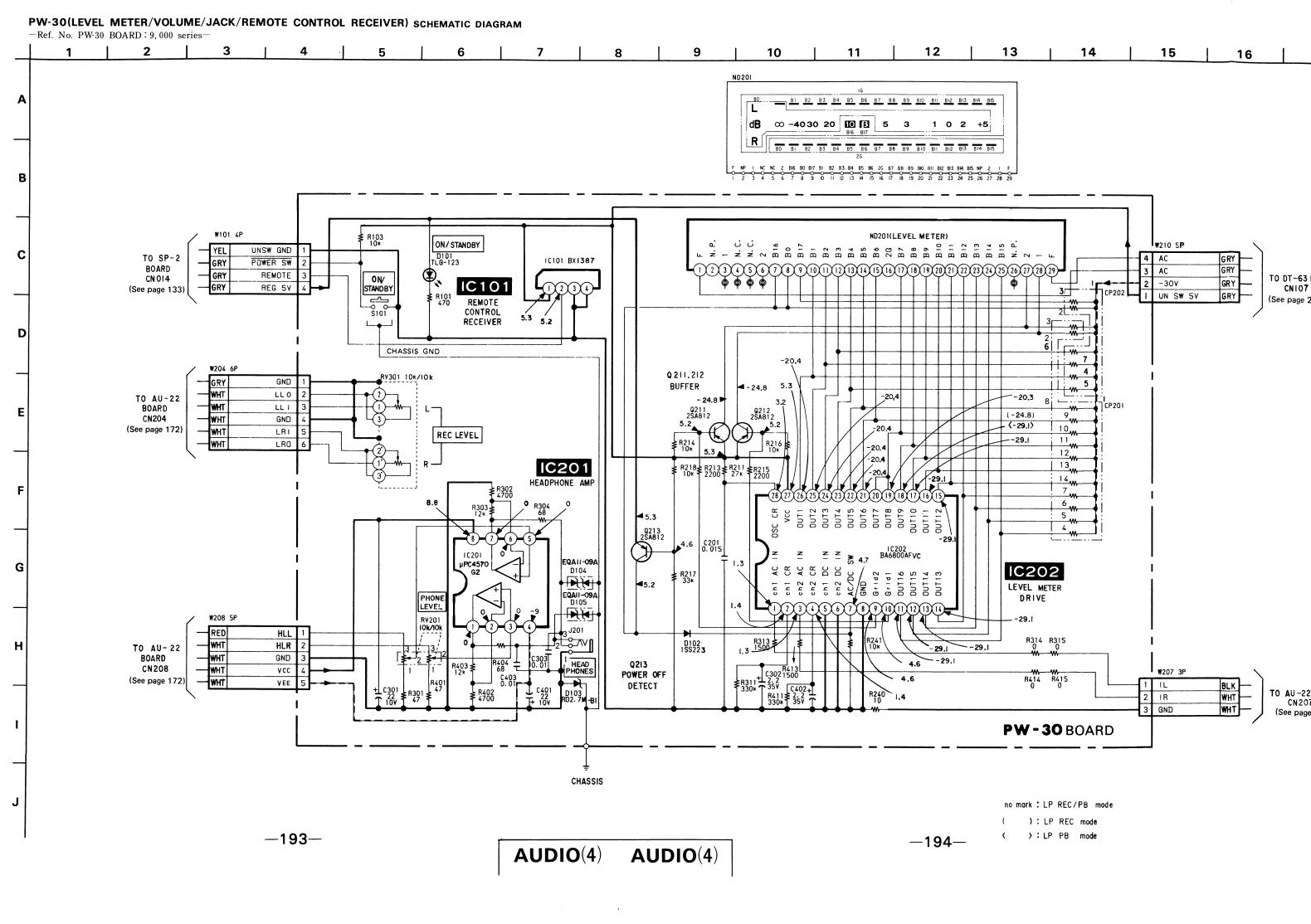
PW-30(LEVEL METER/VOLUME/JACK/REMOTE CONTROL RECEIVER) PRINTED WIRING BOARD

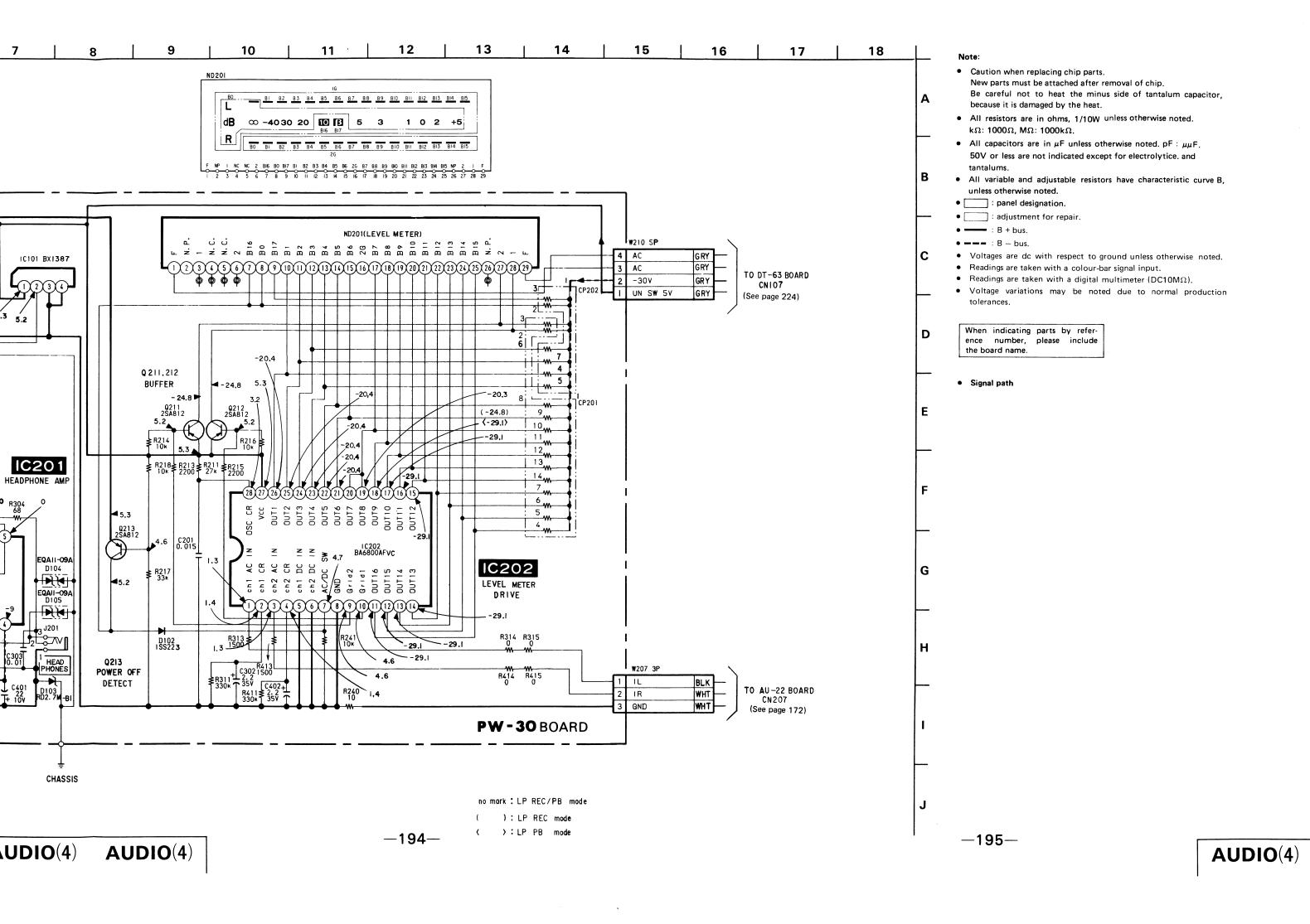
-Ref. No. PW-30 BOARD: 9,000 series-











• O : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

B+ Pattern,

• Digital transistor (TU-83:Q005,Q006,Q007,TS-50:Q018) transistor with resistors.

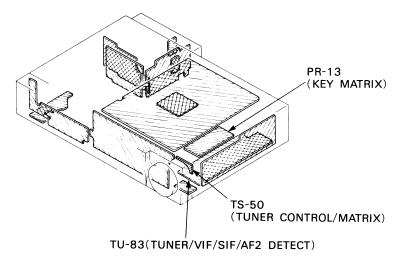
Refer to the TU-83,TS-50 boards schematic diagram for digital transistor.

D101

IC101 IC102 IC103 IC104

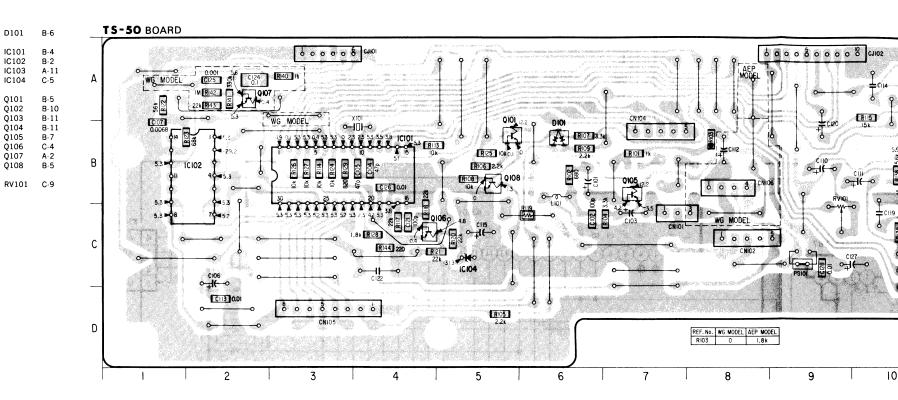
Q101 Q102 Q103 Q104 Q105 Q106 Q107 Q108

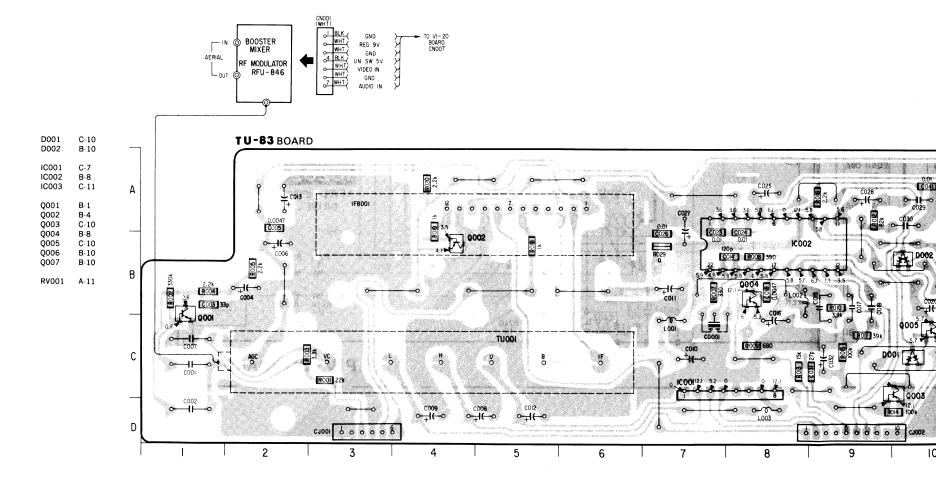
When indicating parts by reference number, please include the board name.



TU-83(TUNER/VIF/SIF/AF2 DETECT), TS-50(TUNER CONTROL/MATRIX), PR-13(KEY MATRIX) PRINTED WIRING BOARDS

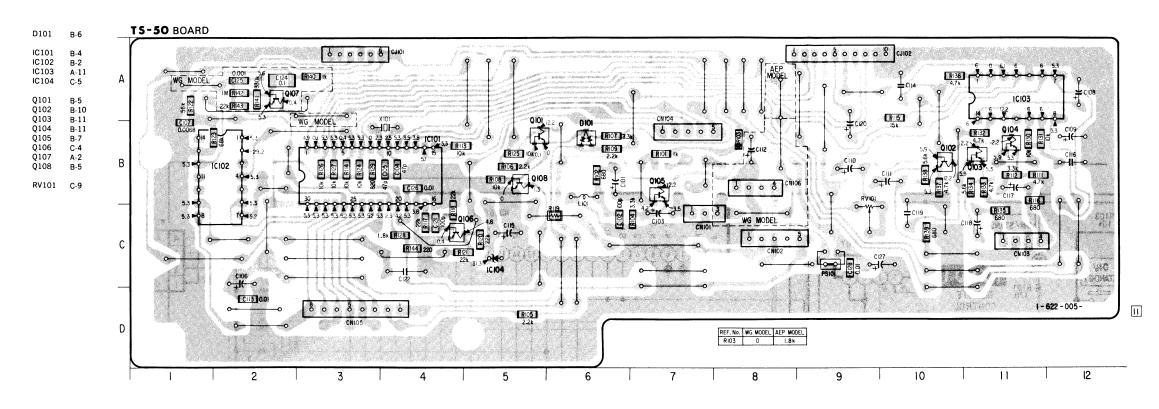
-Ref. No. TU-83 BOARD, TS-50 BOARD: 10,000 series, PR-13 BOARD: 10,500 series-

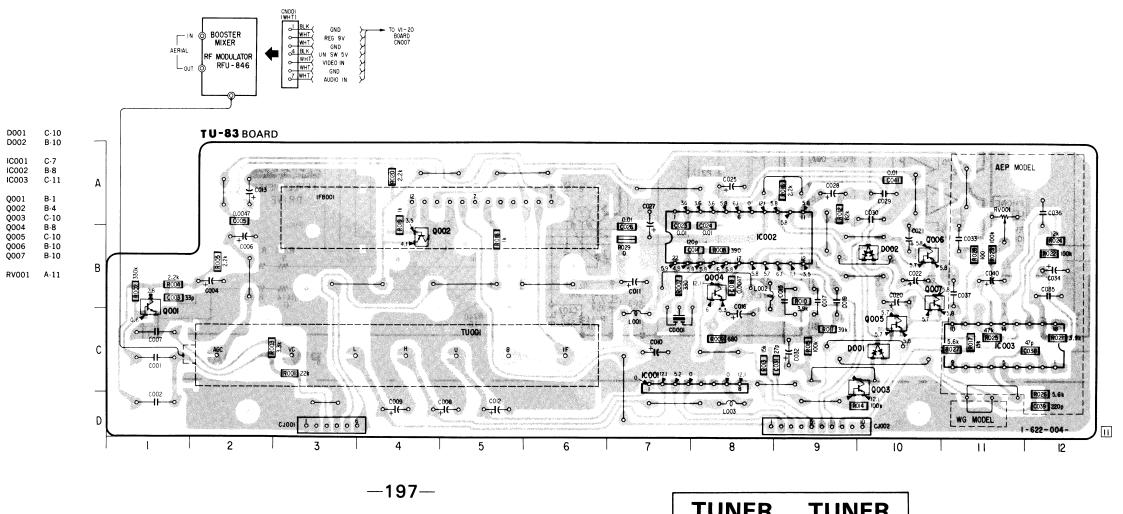


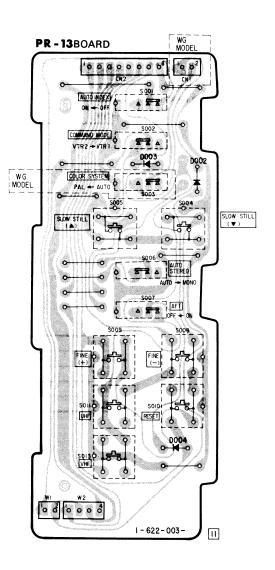


TU-83(TUNER/VIF/SIF/AF2 DETECT), TS-50(TUNER CONTROL/MATRIX), PR-13(KEY MATRIX) PRINTED WIRING BOARDS

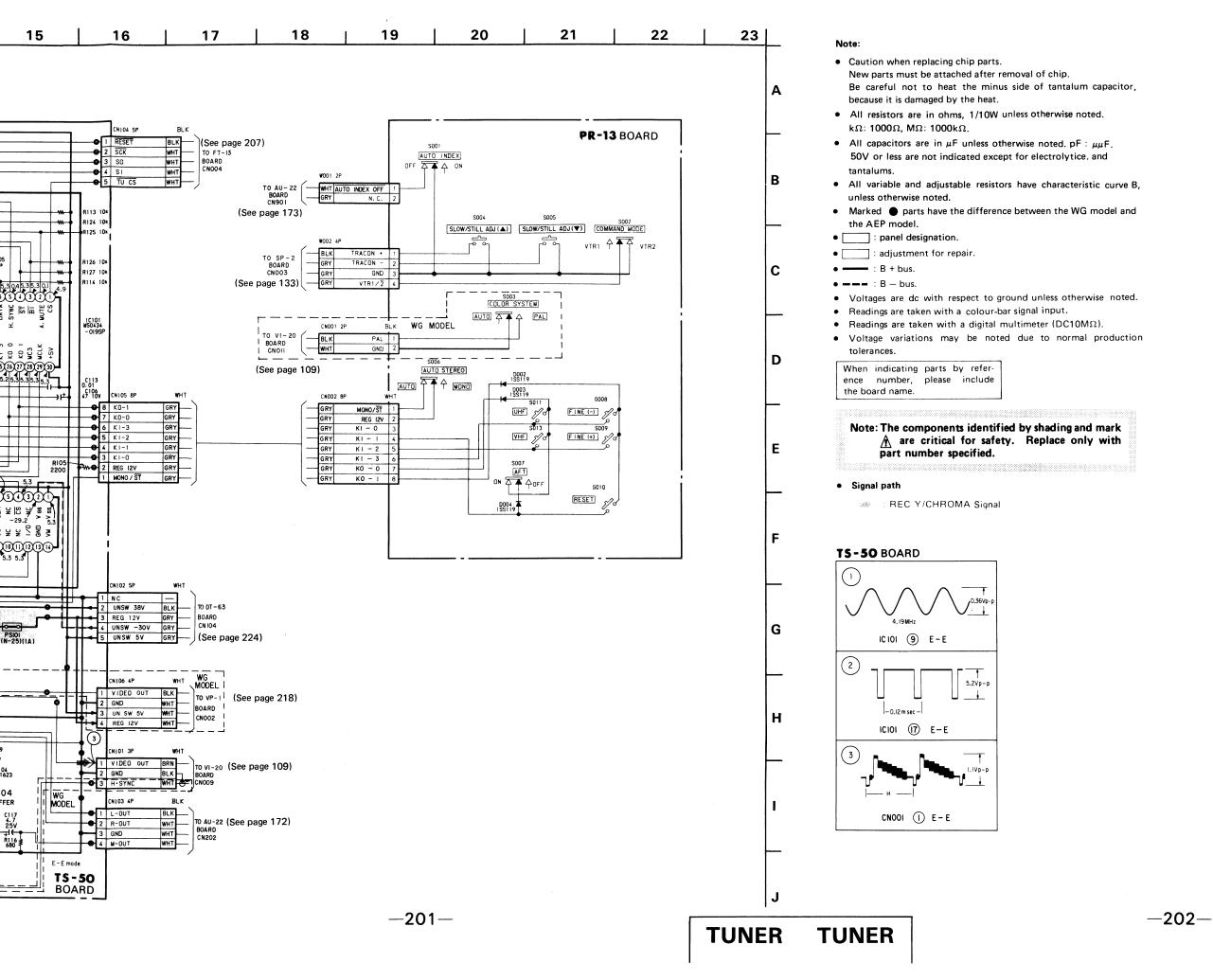
-Ref. No. TU-83 BOARD, TS-50 BOARD: 10,000 series, PR-13 BOARD: 10,500 series-







TUNER TUNER **—198**—



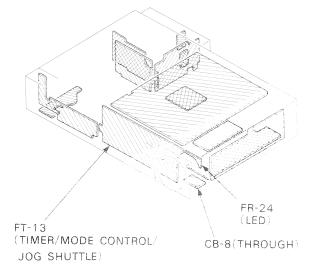
• O : indicates a lead wire mounted on the component side.

: indicates a lead wire mounted on the printed side.

: soldering side.

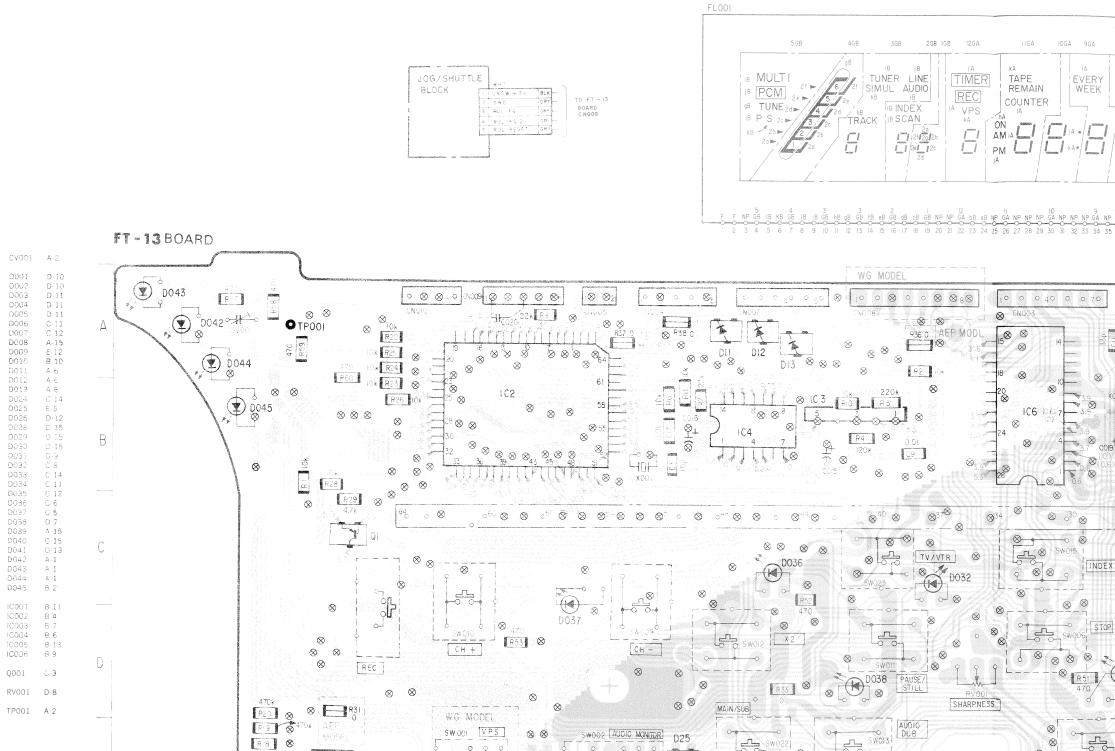
• B+ Pattern,

When indicating parts by reference number, please include the board name.



FT-13(TIMER/MODE CONTROL/JOG SHUTTLE), FR-24(LED), CB-8(THROUGH) PRINTED WIRING BOARDS

Ref. No. FT-13 BOARD: 11,000 series, FR-24 BQARD: 11,200 series, CB-8 BOARD: 11,400 series



-203-

TIMER/MODE CONTROL(1)

E

IC001 IC002 IC003 IC004 IC005 IC006

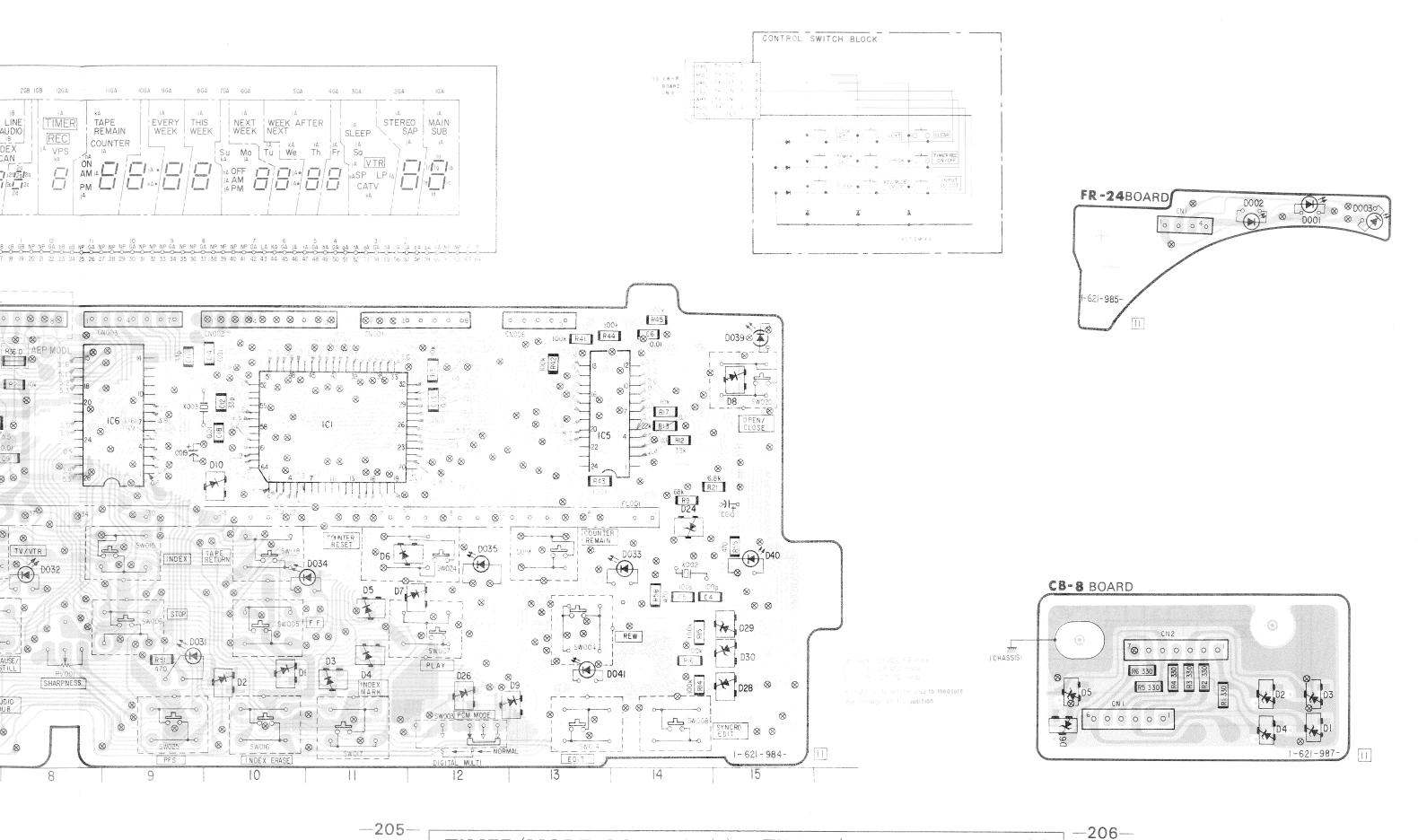
TIMER/MODE CONTROL(1)

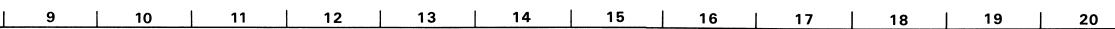
OFF - ON

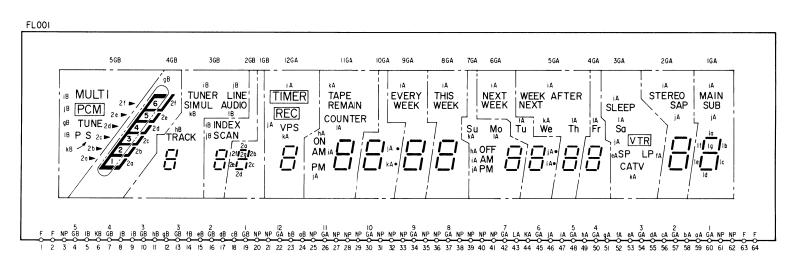
-204-

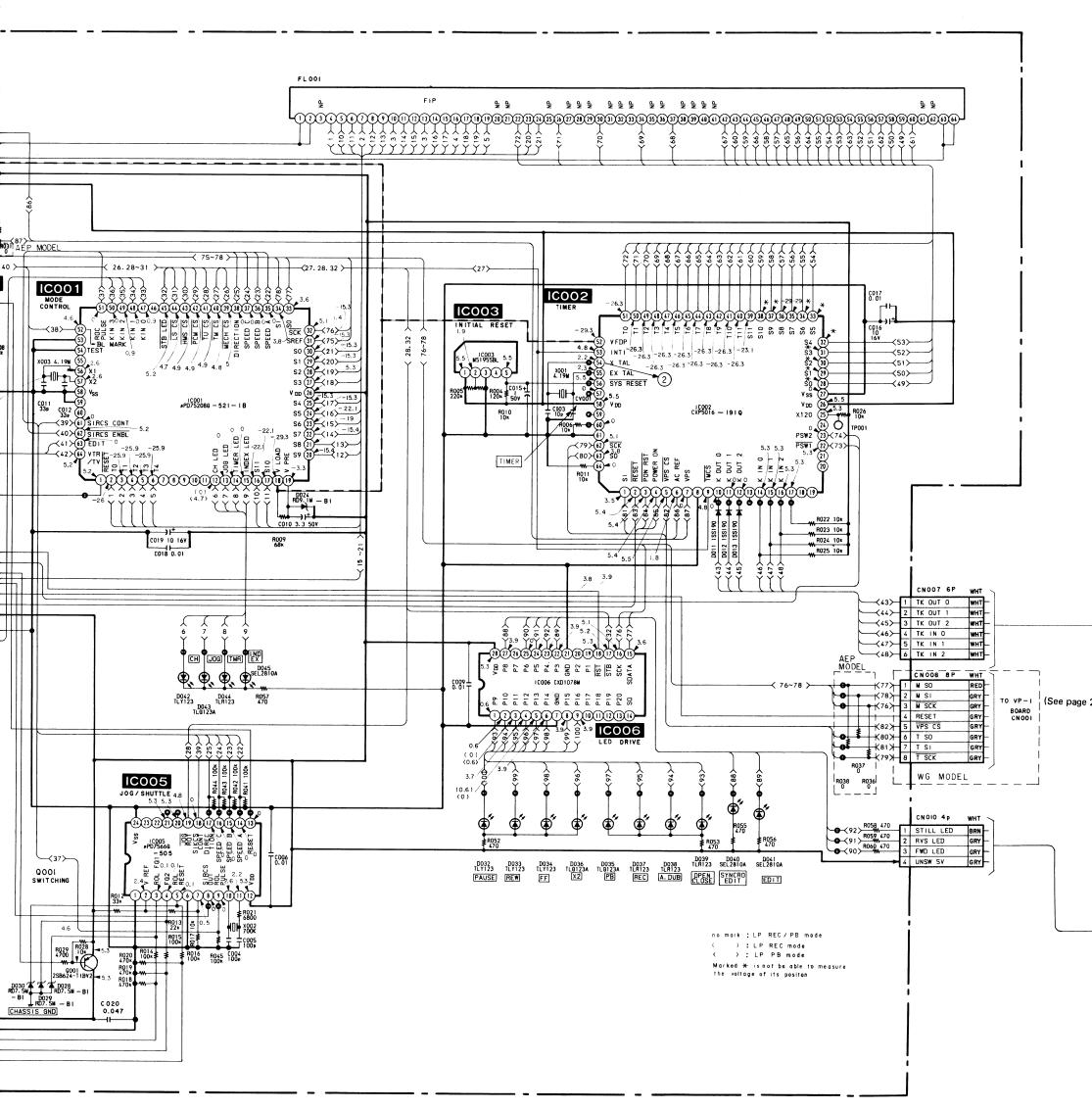
8

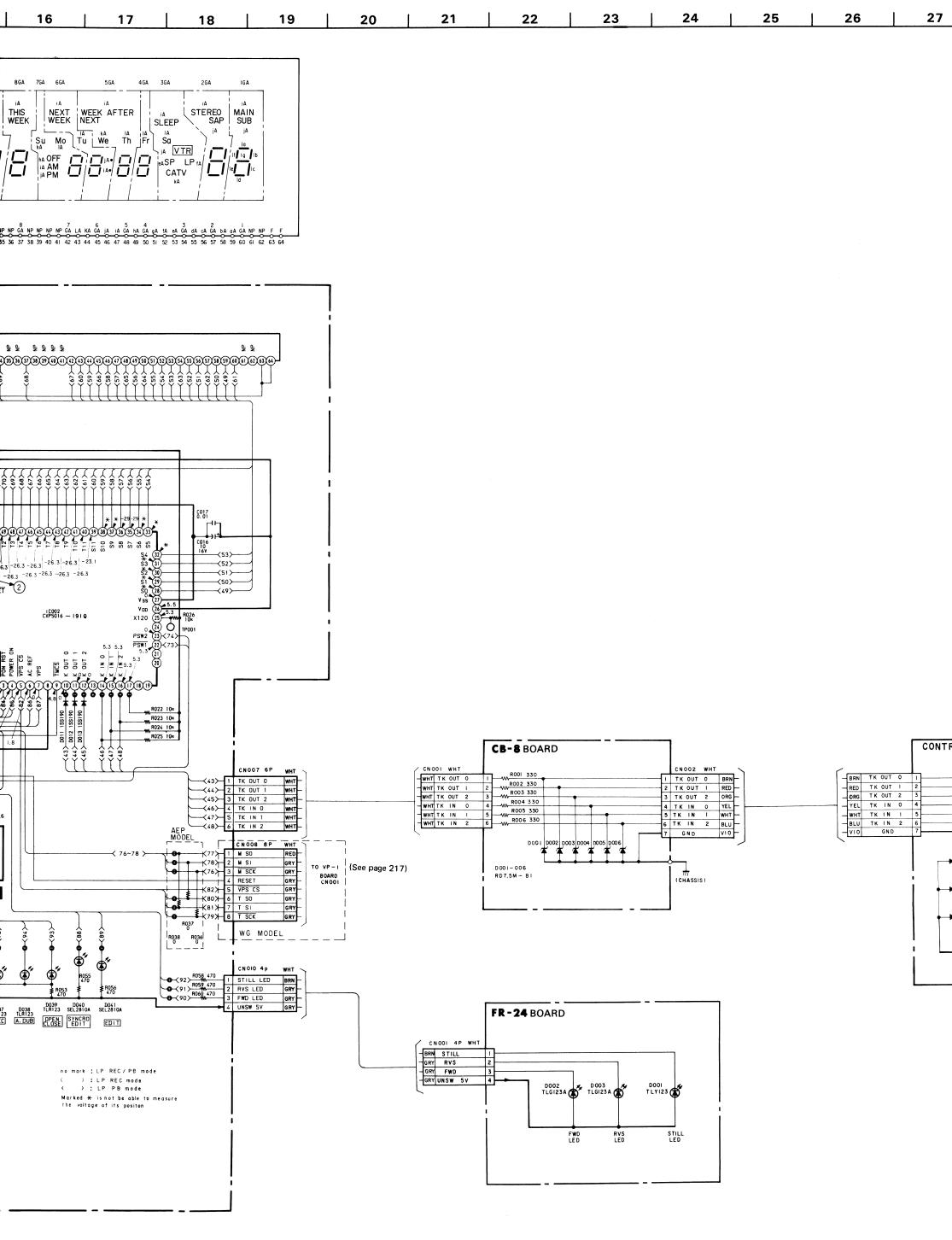
STD◀─ MX◀─ PCM 5

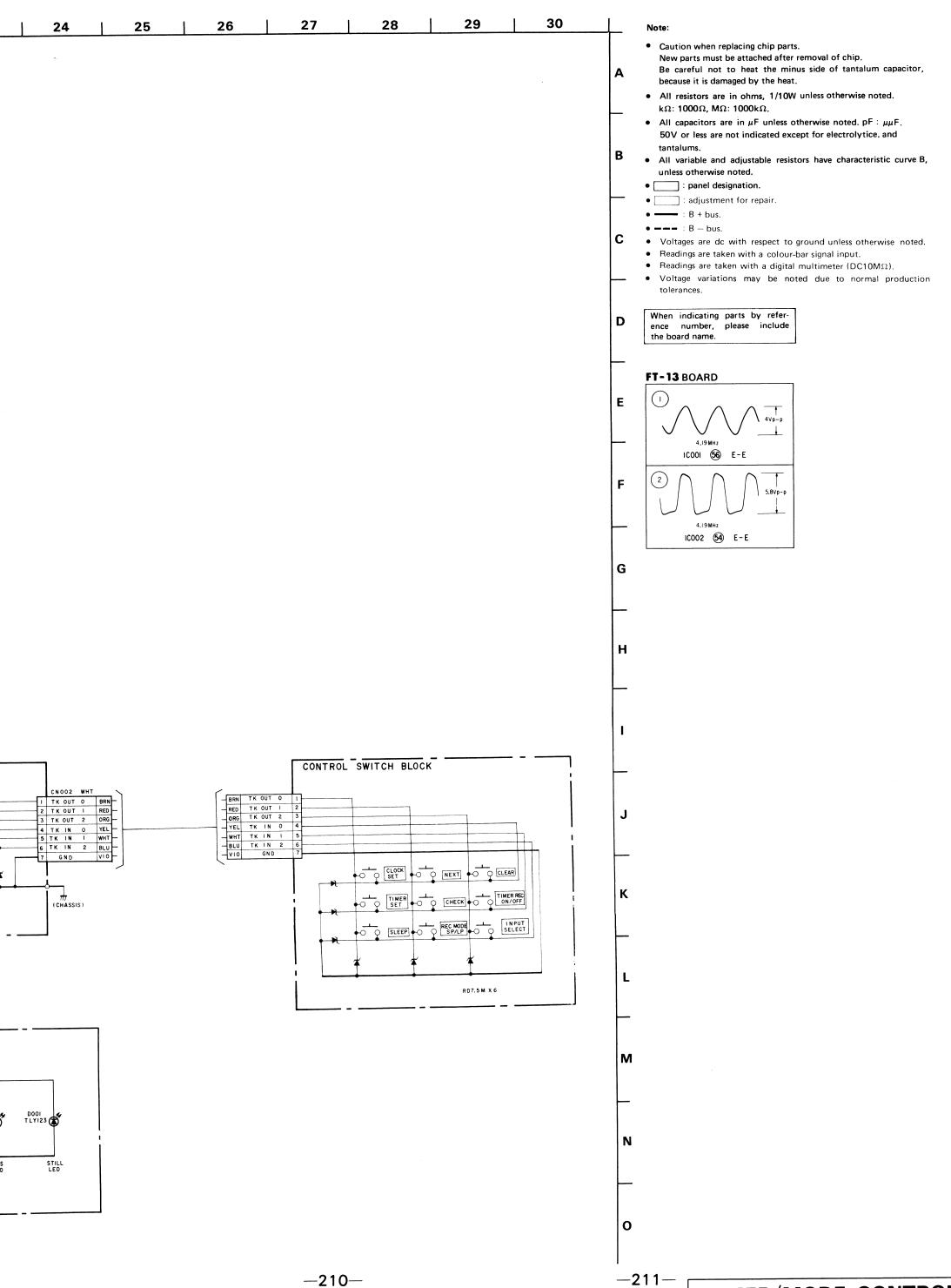












Note:

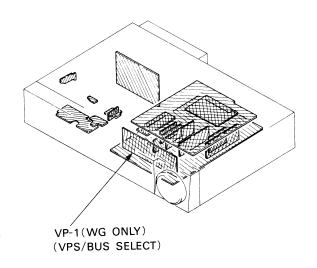
• O- : indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

soldering side.

• B+ Pattern.

When indicating parts by reference number, please include the board name.

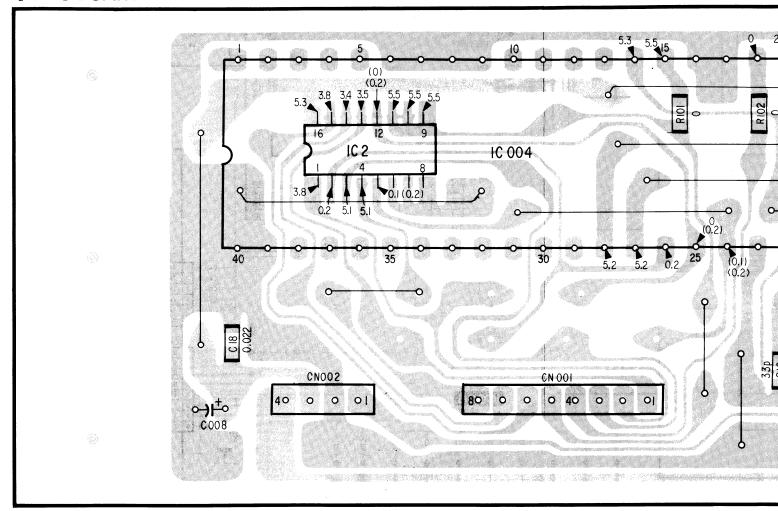


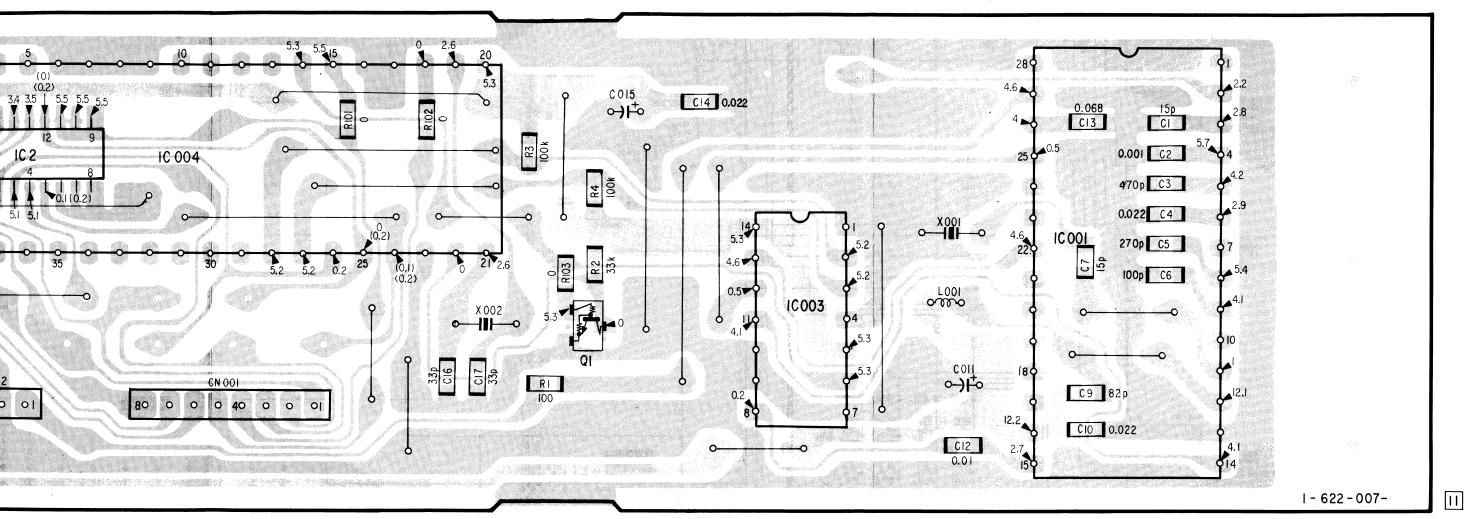
VP-1(VPS/BUS SELECT) PRINTED WIRING BOARD

(WG MODEL)

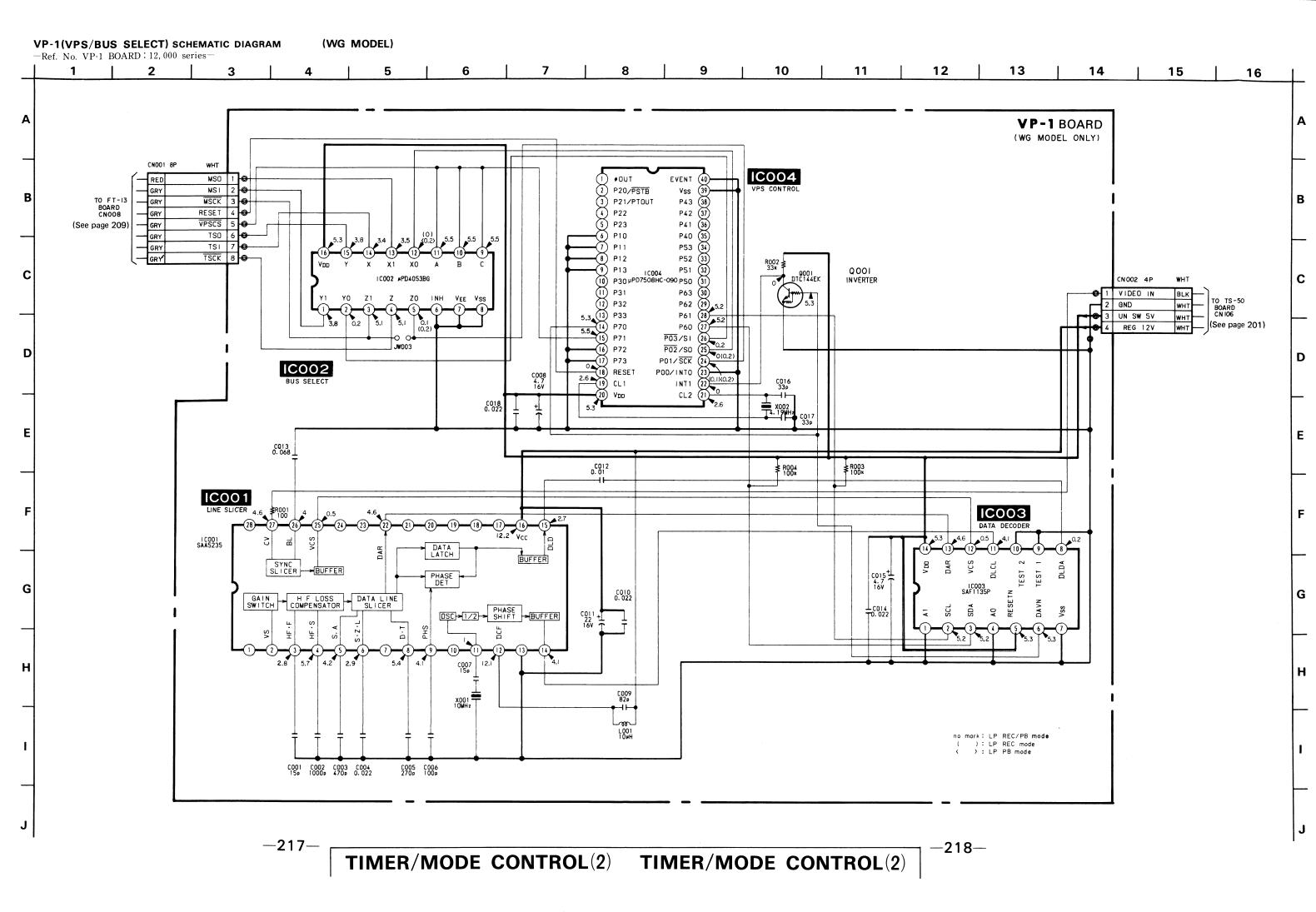
-Ref. No. VP-1 BOARD: 12,000 series-

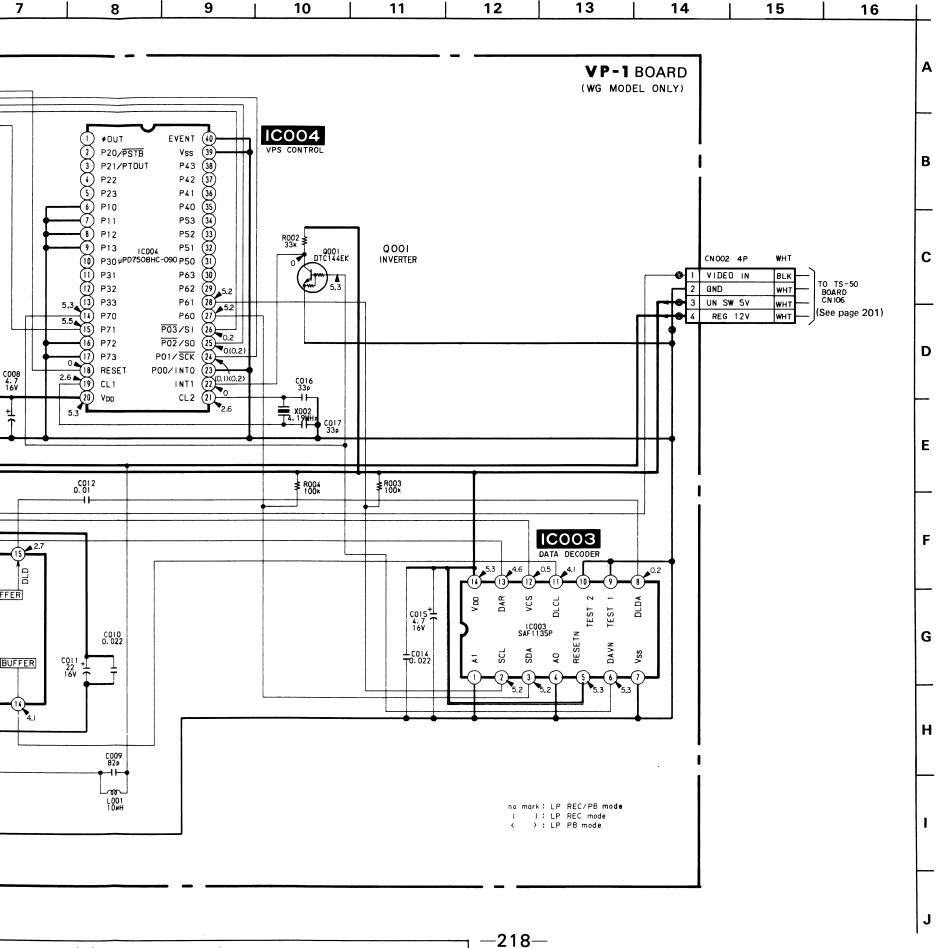
VP-1 BOARD (WG MODEL)





no mark: LP REC / PB mode (): LP REC mode (): LP PB mode





Note

- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
 kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μ F unless otherwise noted. pF: $\mu\mu$ F. 50V or less are not indicated except for electrolytice. and
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- --- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

DR-35(SWITCHING REGULATOR), DT-63(POWER SUPPLY), DL-15(REGULATOR), DO-1(REGULATOR), DS-16(POWER SUPPLY) PRINTED WIRING BOARDS -Ref. No. DR-35 BOARD, DT-63 BOARD, DL-15 BOARD, DO-1 BOARD, DS-16 BOARD: 13,000 series—

Note:

• O : indicates a lead wire mounted on the component side.

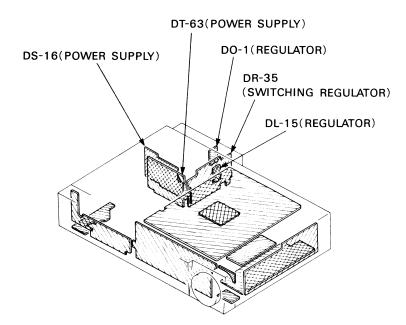
• • : indicates a lead wire mounted on the printed side.

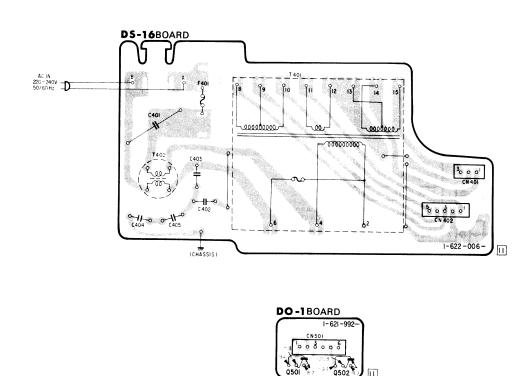
• soldering side.

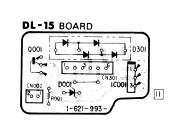
• : B+ Pattern.

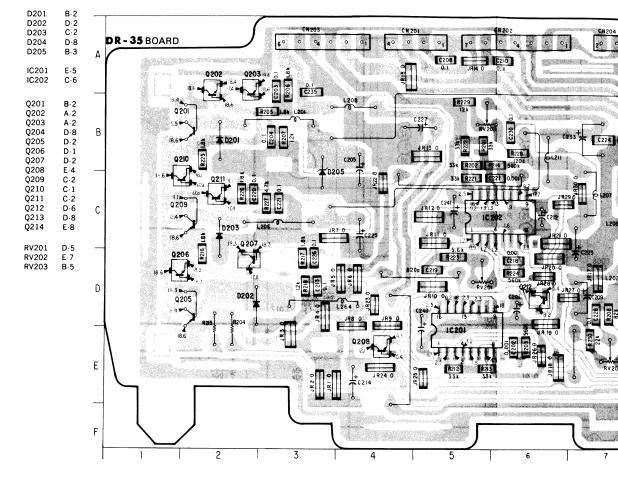
Digital transistor (DR-35:Q208,Q212,Q213,Q214,DL-15:Q001) transistor with resistors.
 Pefer to the DR-35 DL-15 heards schematic diagram for digital

Refer to the DR-35, DL-15 boards schamatic diagram for digital transistor.

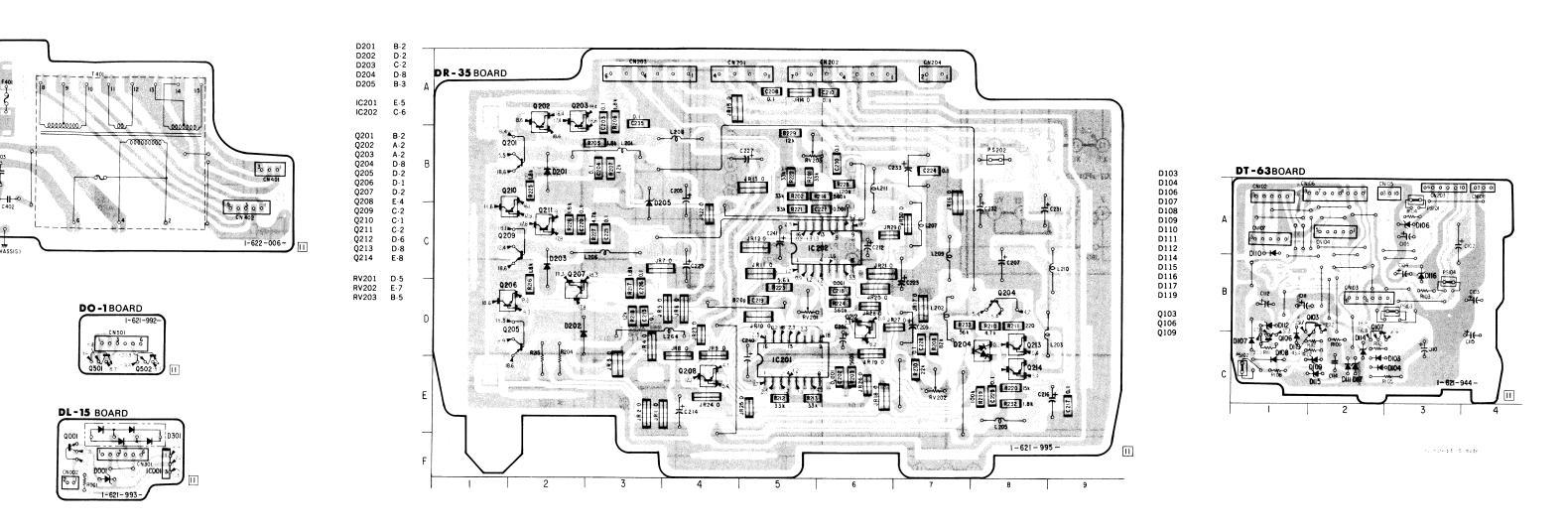


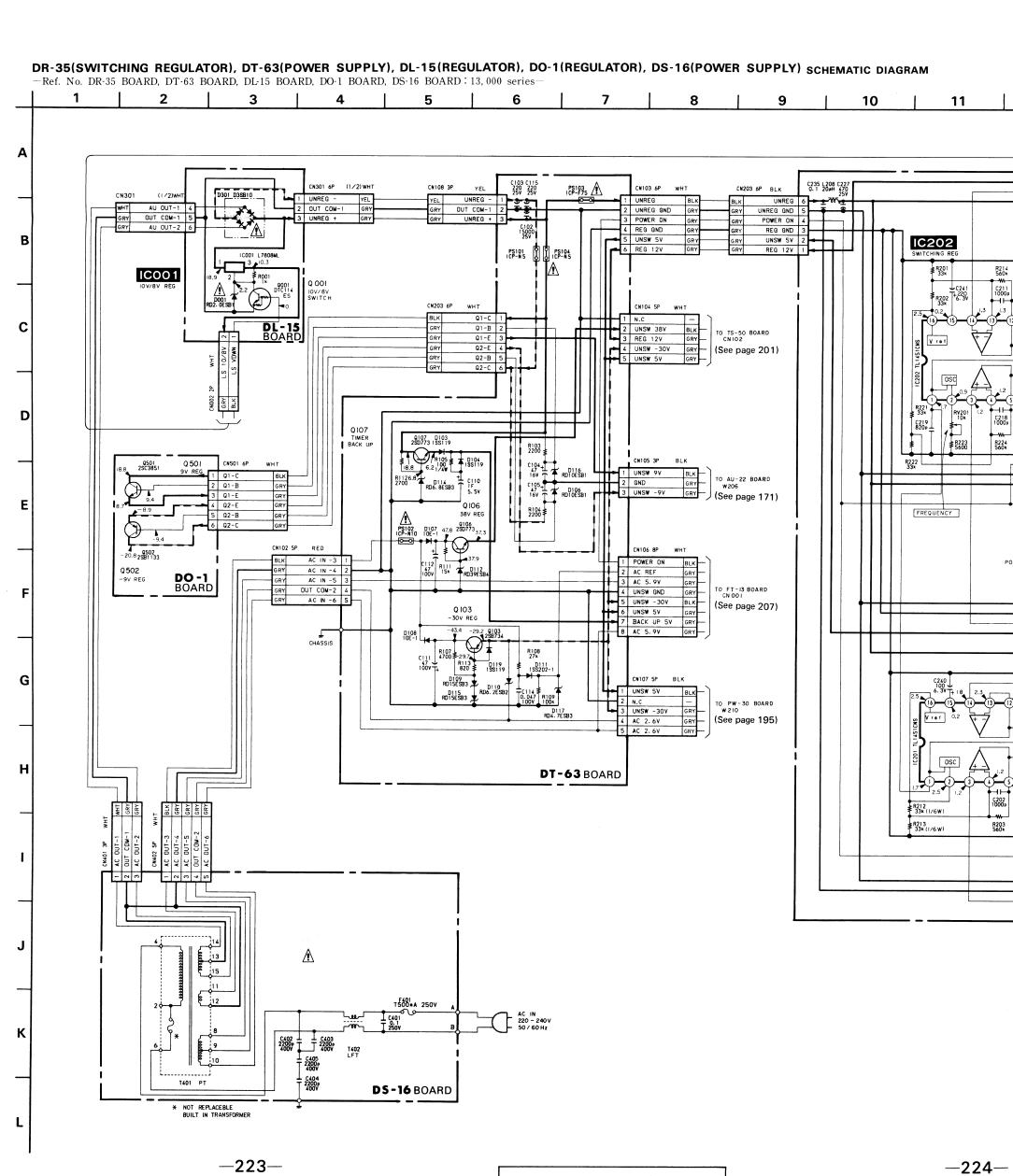


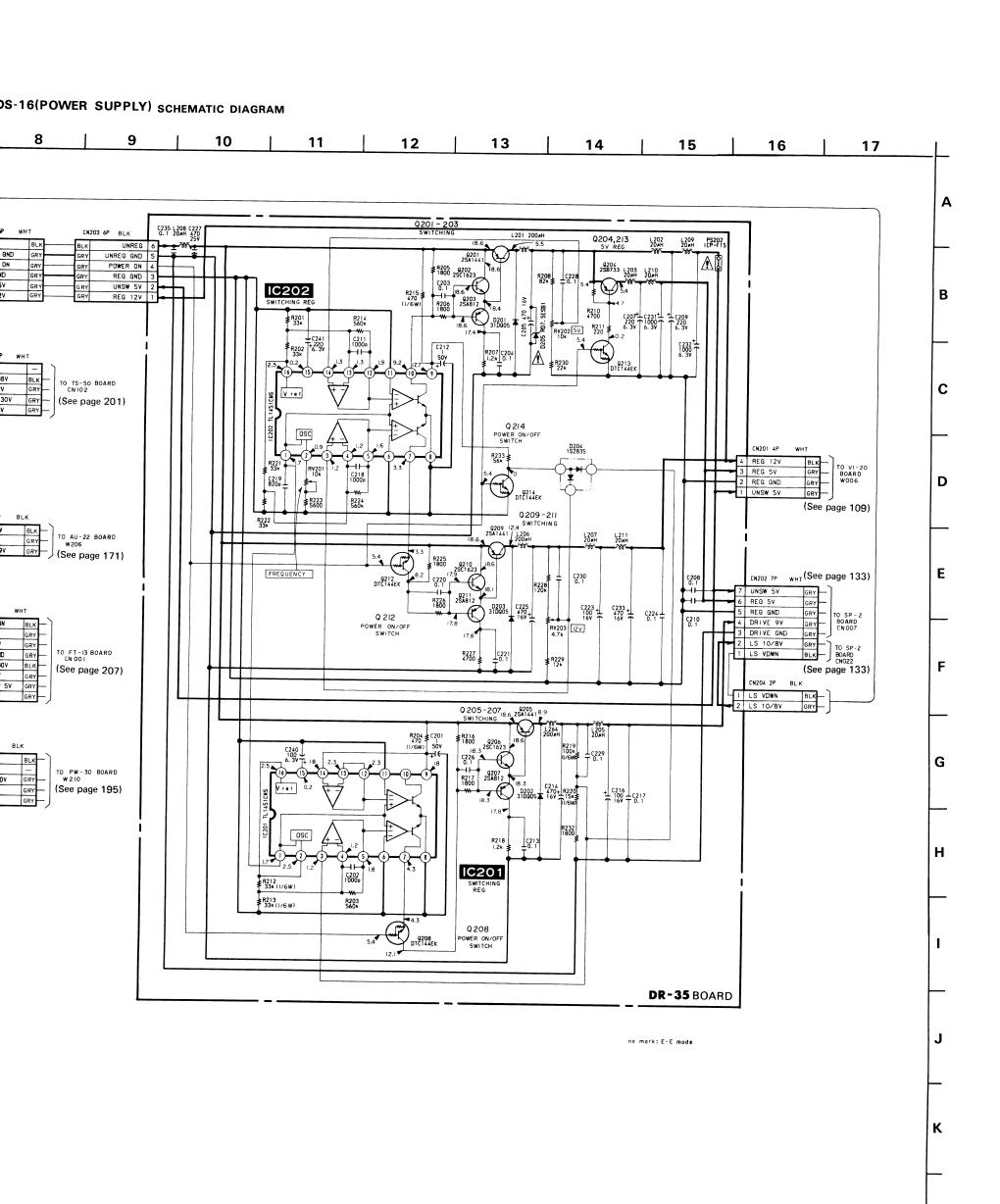




CHING REGULATOR), DT-63(POWER SUPPLY), DL-15(REGULATOR), DO-1(REGULATOR), DS-16(POWER SUPPLY) PRINTED WIRING BOARDS BOARD, DT-63 BOARD, DL-15 BOARD, DS-16 BOARD, DS-16 BOARD : 13,000 series—





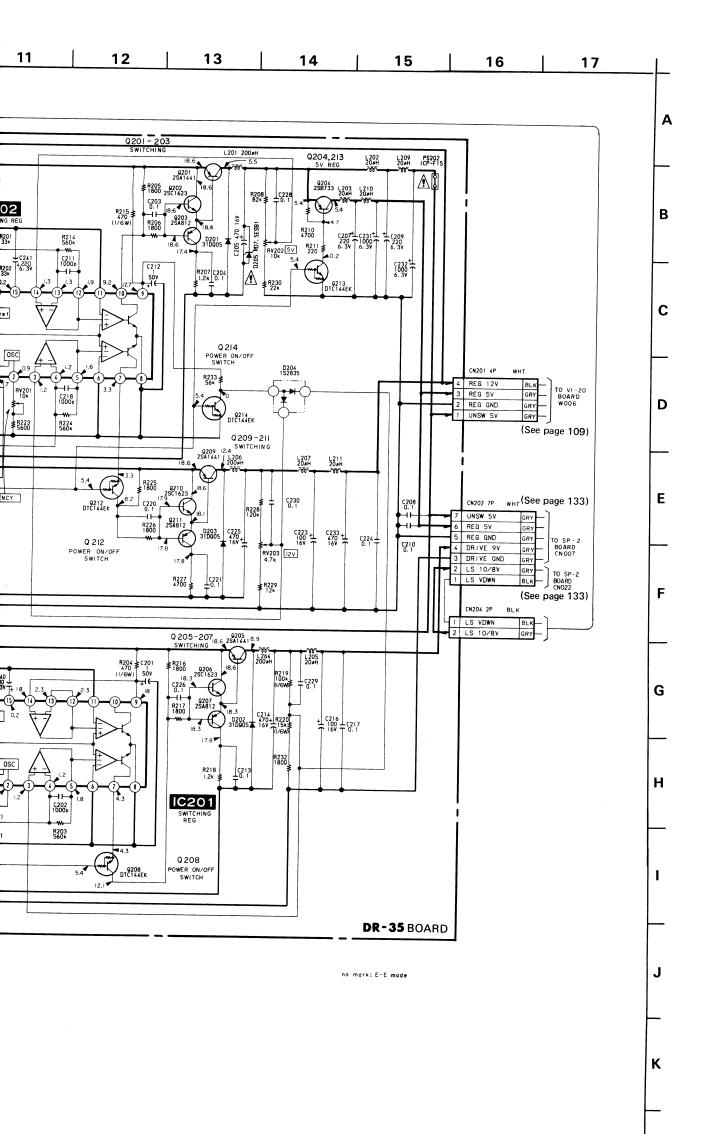


Note:

- Caution when New parts mu
 Be careful n
 because it is of
- Resistors on wise noted.
 Resistors on otherwise not
 kΩ: 1000Ω,
- All capacitor
 50V or less a tantalums.
- All variable a unless otherw
- : adjustr
- --- : B bu
- Voltages areReadings are
- Readings are
- Voltage variation
 tolerances.

When indicating ence number, the board name

Note: The co



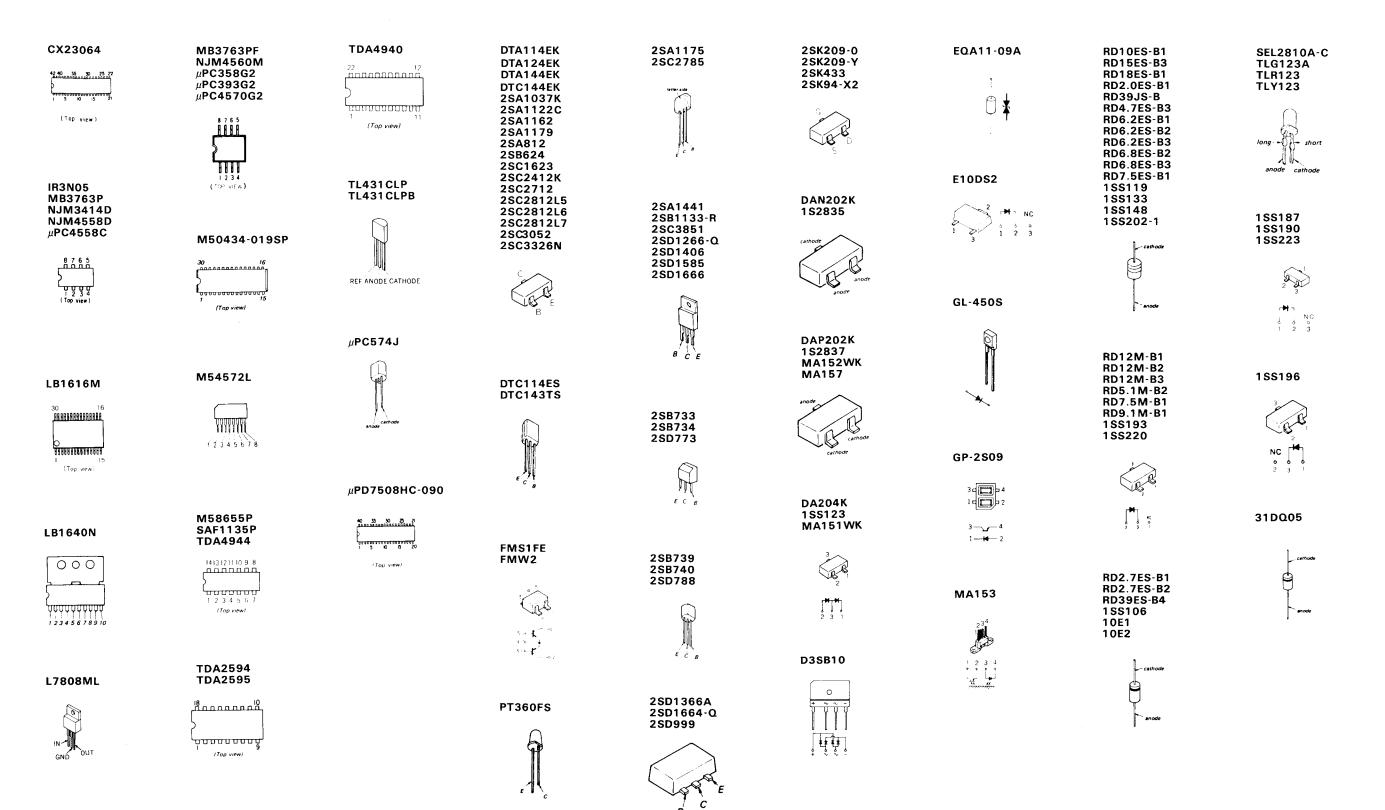
Note:

- Caution when replacing chip parts.
 New parts must be attached after removal of chip.
 Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Resistors on the DR-35 board are in ohms 1/10W unless otherwise noted.
 Resistors on the DT-63 and DL-15 boards are in ohms 1/6W otherwise noted.
 kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μ F unless otherwise noted. pF: $\mu\mu$ F. 50V or less are not indicated except for electrolytice. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- adjustment for repair.
- --- : B + bus.
- --- : B bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

4-3. SEMICONDUCTORS

2SK209-0 2SK209-Y CXP5016-191Q CXP5048H-069Q CX20103 HD14066BFP HD14070BFP BU4051B BU4052B CX23064 MB3763PF **TDA4940** DTA114EK 2SA1175 BA3707 NJM4560S NJM4560M DTA124EK 2SC2785 2SK433 DTA144EK μPC358G2 BU4053B CXP5048H-070Q 2SK94-X2 μPC393G2 DTC144EK CXA1042M MB674101PF NJM3403AM μPC4570G2 μPD75104G-519-B1 TC40H000F 2SA1037K CX23078 HD14051BP μPD75106G-518-1B TC40H004F 2SA1122C HD14052BP μPD75208G-521-1B TC4011BF (Top view) 2SA1162 (Top view) HD14053BFP TC4030BF 2SA1179 HD14053BP TC4030BF-HB 2SA812 HD14538BP TC4066BF 2SB624 MB84051B **μ**PC324G2 2SC1623 μPD4066BG 2SC2412K MB84052B TL431CLP BA6303F BU4053BF IR3N05 2SC2712 MB84053B TL431CLPB DAN202K MB3763P 2SC2812L5 MB88306P 1111111 2SA1441 TOP VIEW NJM3414D 2SC2812L6 1S2835 MC14538BCP CX20115A 2SB1133-R NJM4558D 2SC2812L7 MSM6411B-19RS CX22021 2SC3851 2SC3052 **μ**PC4558C HD14052BFP TC40103BP M50434-019SP 2SD1266-Q 1111111 2SC3326N LA5005M TC4051BP 2SD1406 MB84053BPF TC4051BP-HB 2SD1585 (TOP VIEW) 8 7 6 5 0 0 0 0 TC4052BF TC4052BP CX20032 2SD1666 TC4053BF TC4052BP-HP REF ANODE CATHODE SAA5235 TC4538BF TC4053BP 1234 μPD4364G-15L **TL1451CNS** TC4053BP-HP CX20114 (Top view) μPD4052BG TC4538BP μ PD7566G-505 μPD4053BG μPD4051BC M **μPD4052BC** DAP202K 1S2837 μPC574J μPD4053BC ÎIIIIIIIIII ÄRRRALLÁ MA152WK MA157 M54572L DTC114ES LB1616M DTC143TS IIIIII IIIIIIII 1 2 3 4 5 6 7 8 (TOP VIEW) 2SB733 ARRARARRARRARRAR 44444444 2SB734 2SD773 CX20061 12345678 6000000000000000000 Top vew! BA6800AF CX20130 CXD1077M CXD1078M CX20131 μPD7508HC-090 BX1387 CX20137 DA204K CX20035 155123 M58655P CX20099 MA151WK (Top view) **SAF1135P** CX23012 LB1640N **TDA4944** MB8464-12LPF FMS1FE MB8464-15LPF 2SB739 FMW2 1413171110 9 B 000 M51955BL (Top view) 2SB740 2SD788 CX20102 <u>ÍBRARARARARA</u> CX20147 ÄAAAABAAAR 12345678910 TDA3592A HILLIAND μPD7566G-506 CXD1066Q (TOP VIEW) D3SB10 888888888 CX20034 TDA2594 CX23011 (TOP VIEW) **TDA2595** MB64H428PF L7808ML 2SD1366A PT360FS **BA7036LS** 2SD1664-Q 2SD999 مُ م م م م م م م م (Top view)

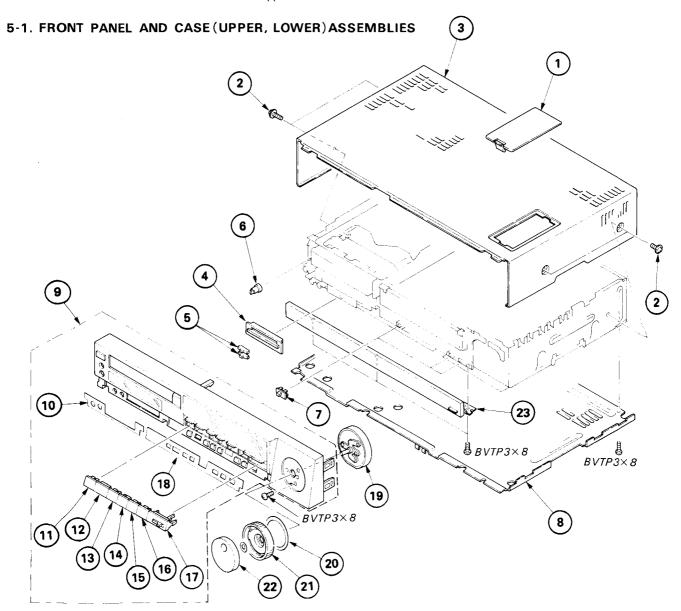


SECTION 5 EXPLODED VIEWS

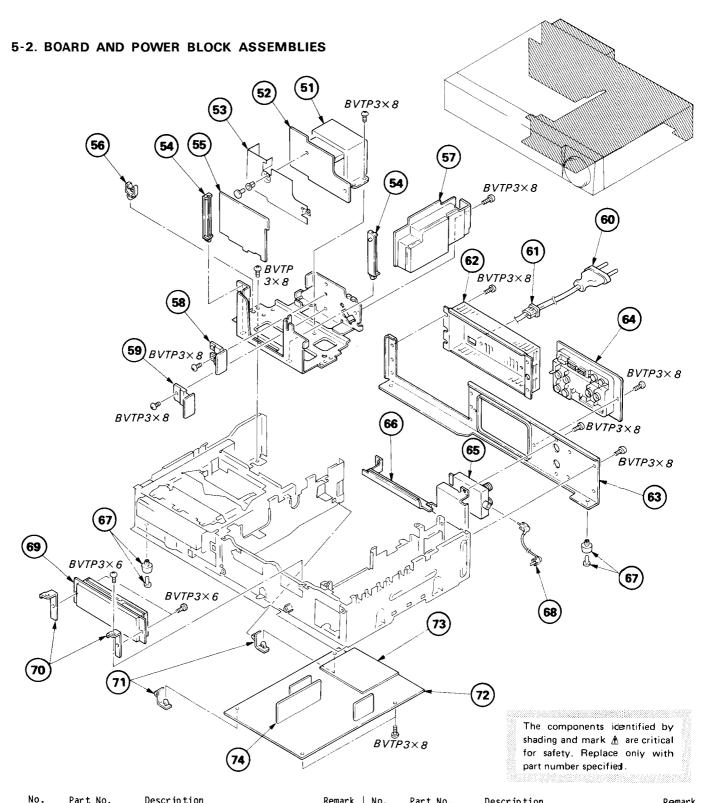
NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

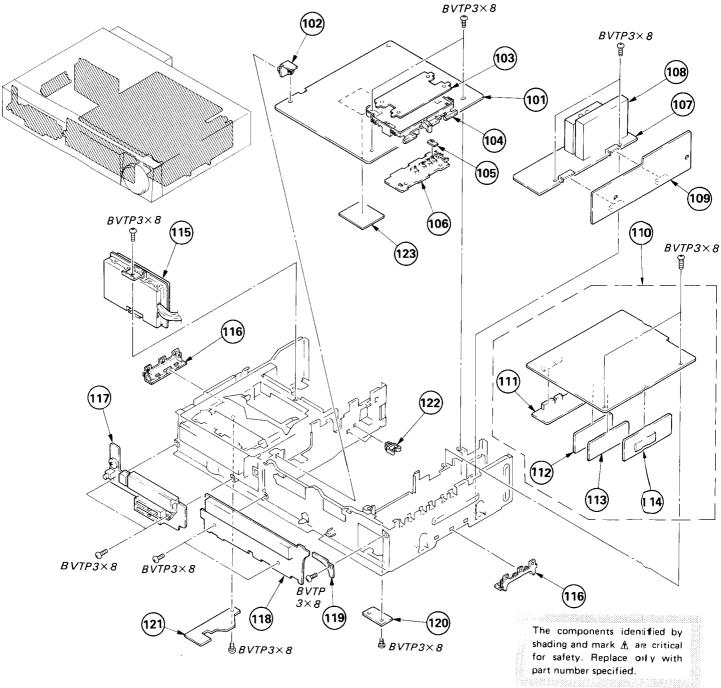


No.	Part No.	<u>Description</u>	Remark	No.	Part No.	Description Remark
1 2 3 4 5 6 7 8	X-3711-957-1 4-886-821-01 X-3711-979-1 X-3711-980-1 3-716-868-01 3-716-867-01 3-716-882-01 *3-716-913-01	LID ASSY, PRESET SCREW, M3 CASE CASE ASSY, UPPER COVER ASSY, SLIDE KEY, SLIDE KNOB, HP KNOB, SLIDE		13 14 15 16 17 18	X-3711-952-1 3-716-856-01 X-3711-954-1 X-3711-955-1 X-3711-981-1 *3-716-865-21 *3-716-865-31	KEY ASSY, FF KEY, STOP KEY ASSY, PAUSE KEY ASSY, X2 KEY ASSY, REC PLATE (A), INDICATION, POCKET (WG MODEL) PLATE (A), INDICATION, POCKET (AE P MODEL) ENCODER, ROTARY
10 11 12	X-3711-984-1 *3-716-866-11 X-3711-953-1	PANEL (UK) ASSY, FRONT (AEP MODEL) PLATE (B), INDICATION, POCKET KEY ASSY, REW KEY ASSY, FWD		21 22 23	3-711-962-01 X-3711-914-1 1-464-785-31	DIAL, SHUTTLE DIAL ASSY, JOG SWITCH BLOCK, CONTROL (WG MODEL) SWICH BLOCK, CONTROL (AEP MODEL)



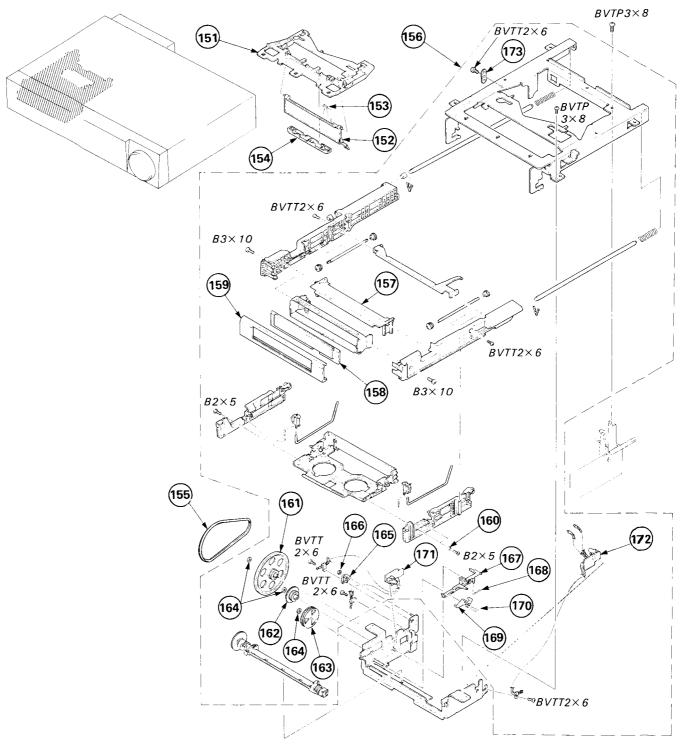
NO.	Part No.	Description	Remark	NO.	Part No.	vescrip tion	Remark
51	1.1-448-836-11	TRANSFORMER, POWER		63	3-713-669-01	FRAME (A), REAR	
52	*1-622-006-11	DS-16 (C) BOARD		64		PLATE (A), ORNAMENTAL, JACK	
53	3-716-892-11	SHEET (LARGE), INSULATING		65		MODULATOR, RF (RFU-857)	
54	3-680-719-11	GUIDE, CHASSIS		66		BAND (A), RF MODULATOR	
55	*A-7070-325-A	DT-63 (C) BOARD, COMPLETE		67	3-697-937-01		
56	*4- 30 9- 753-00	HOLDER, WIRE		68	*1-555-110-00	CABLE, PIN	
57	*A-7060-585-A	DR-35 (B) BOARD, COMPLETE		69	*A-7060-475-A	VP-1 (A) BOARD, COMPLETE (WG MOD	EL)
58	*1-621-992-11	DO-1 BOARD		70		HOLDER, VPS (WG MODEL)	
59	*1-621-993-11	DL-15 BOARD		71		HINGE, CIRCUIT BOARD	
60	1-534-817- XX 1-534-817-	CORD, POWER		72		VI-20 (A) BOARD, COMPLETE (WG MO	DEL.) 74
61	⚠ 3-703-244-00	BUSHING (2104), CORD				VI-20 (B) BOARD, COMPLETE (AEP M	
62	3-713-667-01	COVER (A), POWER (WG MODEL)		73	*A-7068-031-A	TC-3 BOARD, COMPLETE (WG MODEL)	
	3-713-667-21	COVER (A), POWER (AEP MODEL)		74	*A-7068-030-A	CH-44 (B) BOARD, COMPLETE	
				,		•	

5-3. BOARD ASSEMBLY

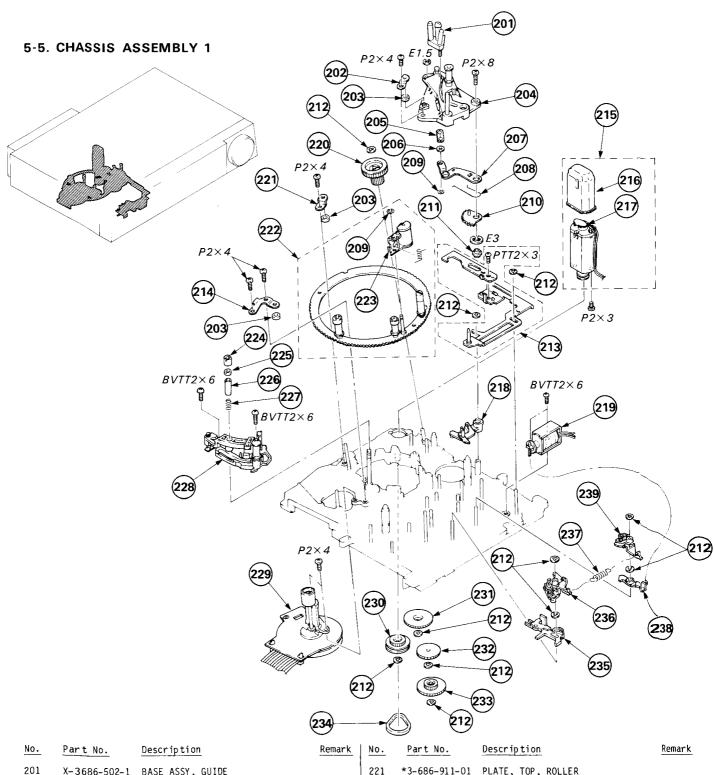


							24 - 25 - 44 - 44 - 44 - 44 - 45 - 45 -
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
101	*A-7060-467-A	SP-2 (B) BOARD, COMPLETE	123	111	*A-7068-022-A	AD-12 (A) BOARD, COMPLETE	
102		HINGE, CIRCUIT BOARD		112	*A-7068-025-A	NR-6 (A) BOARD, COMPLETE	
103		SHEET, PRESET (WG MODEL)	1	113	*A-7068-032-A	MK-2 (B) BOARD, COMPLETE	
		SHEET, PRESET (AEP MODEL)		114	*A-7068-021-A	AF-20 (A) BOARD, COMPLETE	
104	3-716-896-01	PRESET (MAIN) (WG MODEL)		115	*A-7060-466-A	RP-36 (B) BOARD, COMPLETE	
	3-716-896-31	PRESET (MAIN) (AEP MODEL)		116	3-716-907-01	PROTECTOR, FRAME	
105	- / - 003401	KNOB (P), SLID		117	*A-7060-407-A	PW-30 (A) BOARD, COMPLETE	
106		PR-13 (A) BOARD, COMPLETE (WG MOD	DEL) Í	118	*A-7060-470-A	FT-13 (C) BOARD, COMPLETE (WG M	IO FL \
	*A-7060-609-A	PR-13 (B) BOARD, COMPLETE (AEP MO	ODEL) i		*A-7060-793-A	FT-13 (D) BOARD, COMPLETE (AEP	NO DEL 1
107	*A-7060-471-A	TU-83 (A) BOARD, COMPLETE (WG MOD	DEL)	119	*1-621-985-11	FR-24 (A) BOARD	.,
	*A-7060-607-A	TU-83 (B) BOARD, COMPLETE (AEP MO	ODEL)	120			
108	1-463-761-11	TUNER, FT (DT-883B)		121		MJ-11 (A) BOARD	
109	Ф*A-7060-482-A	TS-50 (A) BOARD, COMPLETE (WG MOI	DEL)	122		HOLDER. WIRE	
	4\^A-/060-608-A	TS-50 (B) BOARD, COMPLETE (AFP MC	DDEL)	123			
110	*A-7060-468-A		111-114			No 25 Boyne	

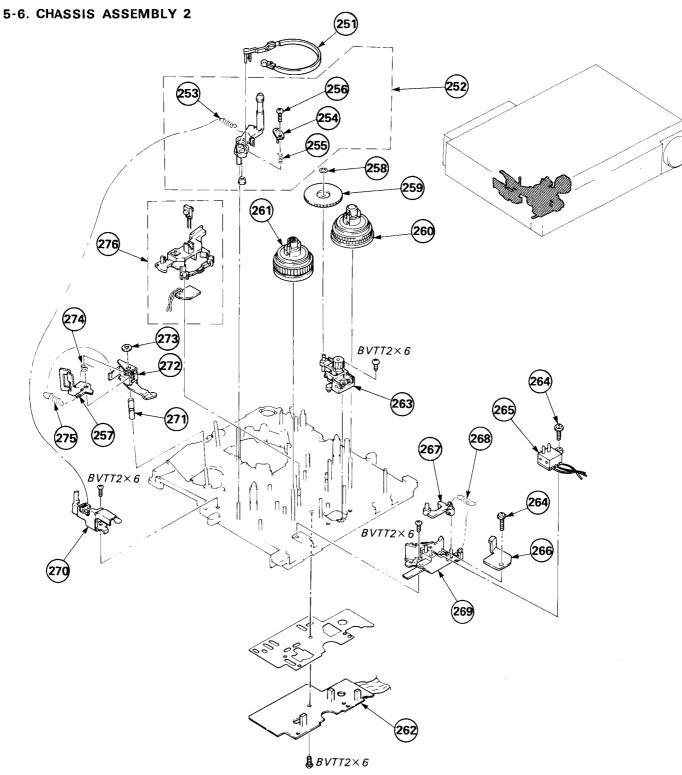
5-4. CASSETTE COMPARTMENT ASSEMBLY



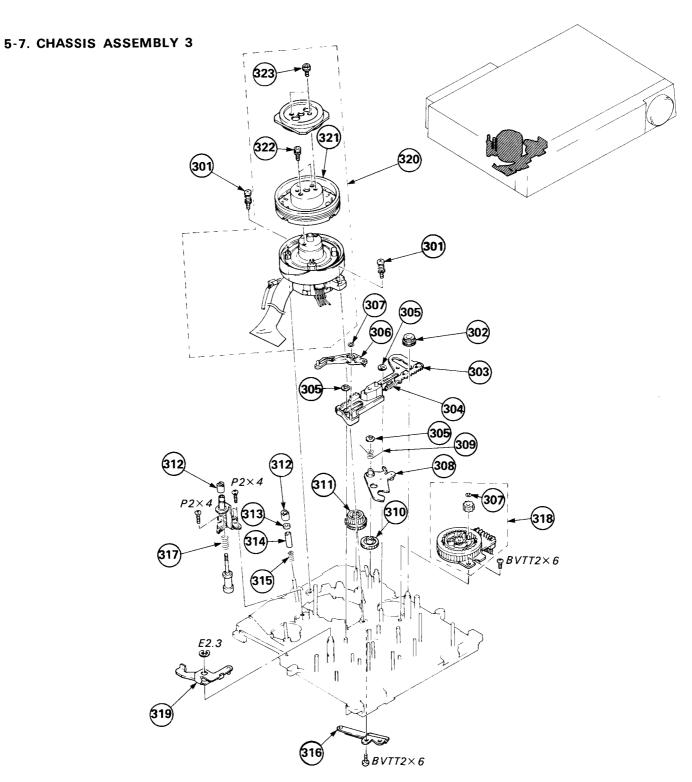
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
151 152 153 154 155 156 157 158 159 160 161	3-713-686-01 3-716-884-01 3-713-670-01 *A-7090-443-A 3-716-885-01 3-713-684-01 3-713-682-01 *3-657-841-01	MIRROR ASSY SPRING HOLDER, LAMP BELT, LS COMPARTMENT ASSY, CASSETTE, LS PLATE, SLOPE GLASS, WINDOW	157-173	163 164 165 166 167 168 169 170 171 172 173	3-716-821-01 3-669-465-00 3-716-937-01 3-716-825-01 3-716-850-01 3-713-687-01 *1-621-998-11 *1-621-997-11	WASHER (2.3), STOPPER ARM, SW WASHER (1.5), STOPPER SLIDER, LOCK SPRING, TENSION HOLDER, LOCK SPRING	



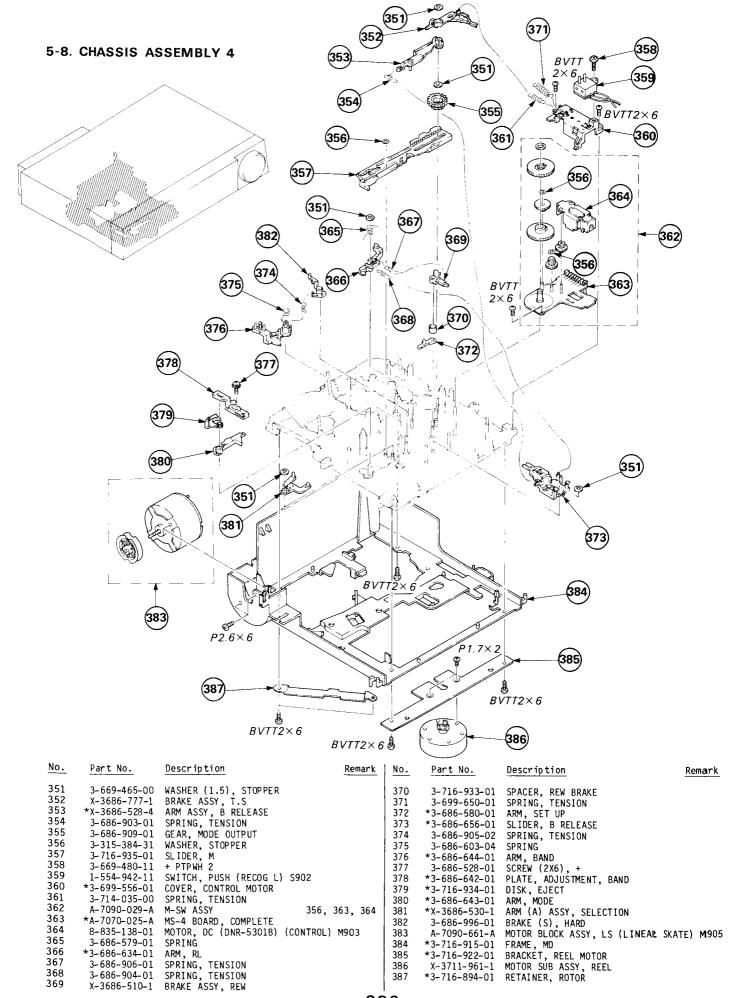
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220	X-3686-502-1 *3-686-503-01 3-697-538-01 X-3686-577-1 3-686-663-01 3-701-436-21 X-3686-537-1 3-686-701-01 3-315-384-31 3-699-509-01 3-686-537-01 3-686-57-01 A-7040-103-A *3-686-675-01 A-7040-065-A *3-686-675-00 1-161-057-00 *3-686-636-04	BASE ASSY, GUIDE RETAINER, ROLLER ROLLER, RING CHASSIS ASSY, GUIDE, SLANT WASHER, STOPPER, 2 GANG WASHER, POLYEHTHYLENE ARM ASSY SPRING WASHER, STOPPER GEAR, SECTOR RETAINER, LOCK SLODER WASHER (1.5), STOPPER SLIDER ASSY, LOCK STOPPER, RING MOTOR ASSY, L (LOADING) M904 21 CAP, SHIELD, L MOTOR CAP, CERAMIC 0.033MF X C901 ARM, T.S RELEASE SOLENOID, PLUNGER (BRAKE) PM901	16, 217	221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239	A-7040-123-A X-3686-648-2 3-686-724-01 *3-686-894-01 3-699-609-01 A-7040-054-A 8-835-247-01 X-3686-518-01 3-686-545-01 3-686-544-01	ARM ASSY, PINCH ROLLER NUT, GUIDE FLANGE, #3 #4 GUIDE GUIDE, #3 #4 SPRING, COMPRESSION GUIDE (P) ASSY, ENTRANCE MOTOR, DC BHF-2804D (CAPSTAN) GEAR, NO.2 GEAR, NO.2 GEAR, NO.3 GEAR, NO.4 BELT, L- MOTOR SLIDER, SELECTION, UPPER & LC BRAKE ASSY, S MAIN SPRING, TENSION ARM, P	



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
251 252 253 254 255 256 257 258 259 260 261 263	A-7040-071-A 3-699-519-01 *X-3686-523-1 3-669-666-00 3-697-546-01 *3-686-641-01 3-315-384-31 X-3686-763-1 X-3686-572-2 X-3711-962-1 *A-7060-411-A	BAND ASSY, TENSION REGULATOR ARM ASSY, TENSION REGULATOR SPRING, TENSION PLATE ASSY, TENSION REGULATOR SPRING, COMPRESSION SCREW (+-M2X6), SPECIAL ARM, PINCH PRESS WASHER, STOPPER GEAR (B) ASSY, DRIVING TABLE ASSY, REEL, TAKE-UP TABEL ASSY, SUPPLY REEL RS-17 BOARD, COMPLETE DRIVING COMPLETE ASSY	253-256		*3-686-991-01 *3-686-637-01 3-696-082-01 *3-686-760-01 *X-3686-525-1 *3-686-567-01 *3-686-660-01 3-669-465-00 3-686-568-01 3-686-885-01	+ PTPWH 2 SWITCH, PUSH (RECOG R) S901 STOPPER, REEL TABLE BRAKE (S), SOFT SPRING, TENSION GUIDE, BAND HOOK ASSY, SPRING SLEEVE, PINCH PRESS ARM, PINCH LIMITER WASHER (1.5), STOPPER SPRING, TORSION SPRING, TENSION LD-1 BOARD, COMPLETE	



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
301		SCREW ASSY, FITTING		313		FLANGE, #3 #4 GUIDE	
302		GEAR, DRIVING, GUIDE, SLANT		314	3-686-912-01	GUIDE, #3 #4	
303	*X-3686-548-2	SLIDER SUB ASSY, L		315	3-699-609-01	SPRING, COMPRESSION	
304	3-686-886-01	SPRING, TENSION		316	1-535-535-11	TERMINAL, SHAFT GROUND	
305	3-669-465-00	WASHER (1.5), STOPPER		317	3-699-514-01	SPRING, COMPRESSION	
306	*X-3686-518-3	ARM ASSY		318	X-3712-403-1	L-SW ASSY	307
307	3-701-437-11	WASHER		319	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
308	X-3686-579-1	CHANGE ASSY, DRIVE		320	A-7048-102-A	DRUM ASSY (DGH-12D-R)	3 21-323
309	3-686-540-01	SPRING, TORSION		321	A-7049-121-A	DRUM ASSY, UPPER, ROTARY	(DGR-1 : R)
310	3-686-535-01			322	3-686-403-01	SCREW (2X5), BOLT WASHER	
311	3-686-539-01			323	3-686-422-01	WASHER (2X2.7), BOLT, HOL	.E
312	3-686-724-01					, , ,	



5-9. HARDWARE LIST

SCREW

7-621-255-20 SCREW +P 2X4
7-621-255-50 SCREW +P 2X8
7-621-772-20 SCREW +B 2X5
7-627-552-28 SCREW, PRECISION +P 1.7X2
7-627-553-48 SCREW, PRECISION +P 2X4

7-628-254-00 SCREW +PS 2.6X5
7-682-549-09 SCREW +B 3X10
7-685-133-19 SCREW +P 2.6X6 TYPE1
7-685-645-79 SCREW +BVTP 3X6 TYPE2 IT-3
7-685-645-79 SCREW +BVTP 3X6 TYPE2 IT-3
7-685-646-79 SCREW +BVTP 3X8 TYPE2 IT-3
7-685-646-79 SCREW +BVTP 3X8 TYPE2
7-685-853-01 SCREW +BVTT 2X3 (S)
7-685-853-01 SCREW +BVTT 2X6 (S)

7-624-101-01 STOP RING 1.2 (E TYPE)
7-624-102-04 STOP RING 1.5, TYPE -E
7-624-105-04 STOP RING 2.3, TYPE -E
7-624-106-04 STOP RING 3.0, TYPE -E
7-624-190-71 STOP RING 5, TYPE-CS

DRUM****

SCREW

7-621-255-15 SCREW +P 2X3 7-621-255-25 SCREW +P 2X4 7-621-734-09 SET-SCT, HEX, 2.6X3

WASHER

7-623-420-07 LW 2, TYPE B

PW-30

RS-17

NOTE:

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 6 ELECTRICAL PARTS LIST

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

 Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

• MF : μF, PF : μμF

COILS

MMH : mH, UH : μH

Dof No	Dant No.	Donnie kier			i					
Ref.No		Description		Remark	Ref.No	Part No.	Description			Remark
	*A-7060-407-A	PW-30 BOARD, COMPLETE			R241 R301	1-216-073-00 1-216-017-00			% 1/10 % 1/10	
	*3-662-205-00	HOLDER (E), LED			R302 R303	1-216-065-00 1-216-075-00	METAL CHIP	4.7K 5	% 1/10)W
	*3-716-919-01	HOLDER, LEVEL INDICATION	N TUBE		R304	1-216-021-00			% 1/10 % 1/10	
	CAF	PACITOR			R311	1-216-109-00		330K 5		
C201	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V	R313 R314	1-216-053-00 1-216-295-00	METAL CHIP METAL CHIP	1.5K 5 0 5		
C301 C302	1-124-234-00 1-124-257-00		20% 20%	10V 35V	R315 R401	1-216-295-00 1-216-017-00	METAL CHIP METAL CHIP	0 5 47 5		
C303 C401	1-163-021-00 1-124-234-00		20%	50V 10V	R402	1-216-065-00	METAL CHIP	4.7K 5	•	
C402	1-124-257-00	ELECT 2.2MF	20%	35V	R403 R404	1-216-075-00 1-216-021-00	METAL CHIP	12K 5	% 1/10	W
C403	1-163-021-00	CERAMIC CHIP 0.01MF		50V	R411 R413	1-216-109-00 1-216-053-00	METAL CHIP METAL CHIP	330K 5	1/10	W
	COMPOSIT	TION CIRCUIT BLOCK			R414	1-216-295-00			,	
CP201 CP202	1-232-957-11	COMPOSITION CIRCUIT BLOC COMPOSITION CIRCUIT BLOC	CK		R415	1-216-295-00	METAL CHIP	0 5		
0, 202	DIC		. N			VAR	IABLE RESISTOR			
D101					RV201	1-228-988-00	RES, VAR, CARE	30N 10K/	10K	
D102	8-719-118-29	DIODE TLG123A DIODE 1SS220			RV301	1-237-589-11	RES, VAR, SLID	DE 10K/10	OK	
D103 D104	8-719-105-32 8-719-907-29	DIODE EQA11-09A				SWI	TCH			
D105	8-719-907-29	DIODE EQA11-09A			S101	1-554-174-00	SWITCH, KEY BC	ARD		
	IC				*****	*****	******	******	*****	*****
IC101 IC201	8-741-138-70 8-759-745-64	IC BX-1387 IC NJM4560M			,	*A-7060-411-A	RS-17 BOARD,	COMPLETE	-	
	8-759-933-54	IC BA6800AF				2 712 410 01				
	JAC	<u>K</u>				3-712-410-01				
J201	1-507-792-21	JACK					ACITOR			
	IND	ICATOR TUBE			C001 C002	1-124-465-00		.47MF	20%	25V 50V
ND201	1-519-406-11	INDICATOR TUBE, FLUORESC	ENT		C003 C004	1-123-608-00 1-163-038-00	CERAMIC CHIP O		20%	50V 25V
	TRA	NSISTOR			C005		CERAMIC CHIP O		10%	50 v
0211		TRANSISTOR 2SA812			C006	1-163-021-00	CERAMIC CHIP O	.01MF	10%	50 V
Q212 Q213	8-729-100-76 8-729-100-76	TRANSISTOR 2SA812 TRANSISTOR 2SA812				CONI	NECTOR			
	RES	ISTOR			CN002 *	*1-564-003-00 *1-564-003-00	PIN, CONNECTOR PIN, CONNECTOR	4P 4D		
R101	1-216-041-00	METAL CHIP 470 5%	1/10W		CNOO4 *	1-564-001-11	PIN, CONNECTOR PIN, CONNECTOR	2P		
R103 R211	1-216-073-00 1-216-083-00	METAL CHIP 10K 5% METAL CHIP 27K 5%	1/10W 1/10W				PIN, CONNECTOR			
R213 R214	1-216-057-00 1-216-073-00	METAL CHIP 2.2K 5% METAL CHIP 10K 5%	1/10W 1/10W			<u>IC</u>				
R215	1-216-057-00	METAL CHIP 2.2K 5%	1/10W		IC001	8-759-107-68	IC CX20115A			
R216 R217	1-216-073-00	METAL CHIP 10K 5%	1/10W		10002	8-759-100-93				
R218 R240	1-216-085-00 1-216-073-00	METAL CHIP 33K 5% METAL CHIP 10K 5%	1/10W 1/10W			DIO	_			
NE 40	1-216-001-00	METAL CHIP 10 5%	1/10W	i	PH001	8-719-939-11	GP2SO9-B			

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
PH002 PH003	8-719-939-11 8-719-939-11				C114 C115	1-163-818-00 1-163-021-00	CERAMIC CHIP 0.1MF CERAMIC CHIP 0.01MF	10%	50V 50V
	TRA	NSISTOR			C116 C117 C118	1-163-035-00 1-163-033-00 1-163-021-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 0.022MF CERAMIC CHIP 0.01MF	10%	25V 50V 50V
0001 0002 0003		TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK			C119 C120	1-163-818-00 1-163-818-00	CERAMIC CHIP 0.1MF CERAMIC CHIP 0.1MF	10% 10%	50V 50V
0004 0005		TRANSISTOR FMS1FE TRANSISTOR FMW2			C121 C122 C123	1-163-021-00 1-163-107-00 1-163-021-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 39PF CERAMIC CHIP 0.01MF	10% 5%	50V 50V 50V
	RES	ISTOR			C124	1-163-038-00	CERAMIC CHIP 0.1MF		25V
R001	1-216-081-00	METAL CHIP 22K	5% 1/1	LOW	C125	1-124-638-11	ELECT 22MF	20%	6.3V
R002	1-216-055-00			LOW	C126	1-163-021-00	CERAMIC CHIP 0.01MF		50V 50V
R003 R004	1-216-031-00 1-216-174-00		5% 1/8 5% 1/8	LOW RW	C127	1-163-021-00 1-123-611-00	CERAMIC CHIP 0.01MF ELECT 1MF	20%	50V 50V
R005	1-216-089-00			LOW					
R006	1-216-089-00	METAL CHIP 47K	5% 1/1	LOW	C129 C130	1-124-638-11 1-163-021-00	ELECT 22MF CERAMIC CHIP 0.01MF	20%	6.3V 50V
R007	1-216-089-00			LOW	C130	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
R008	1-216-073-00			LOW	C132	1-123-611-00	ELECT 1MF	20%	500
R009 R010	1-216-073-00 1-216-073-00			10W Low	C133	1-163-107-00	CERAMIC CHIP 39PF	5%	507
			·		C134	1-163-035-00	CERAMIC CHIP 0.047MF		507
R011	1-216-073-00			LOW	C136	1-163-017-00	CERAMIC CHIP 0.0047MF CERAMIC CHIP 0.022MF	10% 10%	50V 25V
R012 R013	1-216-073-00 1-216-107-00			10W 10W	C137 C138	1-163-033-00 1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
R014	1-216-073-00	· · - · · · · · · · · · · · · · · · · · · ·		10W	C139	1-163-021-00	CERAMIC CHIP 0.01MF		50V
R015	1-216-107-00	METAL CHIP 270K	5% 1/	10W	0140	1 122 617 00	ELECT 10MF	20%	167
R016	1-216-073-00	METAL CHIP 10K	5% 1/	10W	C140 C201	1-123-617-00 1-135-095-00	TANTAL. CHIP 1.5MF	20%	107
R017	1-216-073-00			10W	C202	1-135-095-00	TANTAL. CHIP 1.5MF	20%	100
R018	1-216-107-00		•	10W	C203	1-163-021-00	CERAMIC CHIP 0.01MF		507
R019 R020	1-216-073-00 1-216-107-00	METAL CHIP 10K METAL CHIP 270K		10W 10W	C204	1-163-021-00	CERAMIC CHIP 0.01MF		50 V
KOZO			56 17	ION	C205 C206	1-124-638-11 1-163-038-00	ELECT 22MF CERAMIC CHIP 0.1MF	20%	6.3V 25V
	1115	RMISTOR			C207	1-163-038-00	CERAMIC CHIP 0.1MF		25V
THP001	1-806-886-11	THERMISTOR (POSITIVE	:)		C208 C209	1-124-638-11	ELECT 22MF CERAMIC CHIP 0.01MF	20%	6.3V 50V
*****	******	*****	*****	*****		1-163-021-00	CERAMIC CHIP O.OIMF		
	*A-7060-466-A	RP-36 BOARD, COMPLE	TE		C210 C211	1-163-035-00 1-163-021-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF	10%	25V 50V
	A-7000-400-A	**********			C212	1-163-021-00	CERAMIC CHIP 0.01MF		507
					C213	1-163-818-00	CERAMIC CHIP 0.1MF	10%	50V
	CAF	PACITOR			C214	1-163-818-00	CERAMIC CHIP 0.1MF	10%	50 V
C101		TANTAL. CHIP 1.5MF	20%		C215		CERAMIC CHIP 0.01MF	1.00	50V
C102 C103	1-135-095-00	TANTAL. CHIP 1.5MF CERAMIC CHIP 0.01MF	20%	10V 50V	C216 C217	1-163-035-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF	10%	25V 50V
		CERAMIC CHIP 0.01MF		50V	C218		CERAMIC CHIP 0.01MF		50V
C105	1-124-638-11		20%		C219		CERAMIC CHIP 0.1MF	10%	507
C106	1-163-038-00	CERAMIC CHIP 0.1MF		25V	C220	1-163-818-00	CERAMIC CHIP 0.1MF	10%	50v
C107	1-163-038-00	CERAMIC CHIP 0.1MF		257	C221		CERAMIC CHIP 0.01MF	10%	50V
C108	1-124-638-11		20%	6.37	C222		CERAMIC CHIP 47PF	5%	50V 50V
C109 C110	1-163-021-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.047MF	10%	50V 25V	C223 C224	1-163-021-00 1-163-038-00			25V
C111 C112		CERAMIC CHIP 0.022MF	-	50V	C225	1-124-638-11	ELECT 22MF CERAMIC CHIP 0.01MF	20%	6.3V 50V
C112		CERAMIC CHIP 0.01MF CERAMIC CHIP 0.1MF	10%	50V 50V	C226		CERAMIC CHIP 0.01MF		50V 50V
	323 00		= 3.4		. = .				

RP-36

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C228 C229 C230 C231 C232	1-123-611-00 1-124-638-11 1-163-021-00 1-163-021-00 1-123-611-00	ELECT 22MF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.01MF	20% 20% 10% 20%	50V 6.3V 50V 50V 50V	L108 L201 L203 L204 L205	1-408-791-00 1-407-158-XX	INDUCTOR CHIF INDUCTOR CHIF MICRO INDUCTO MICRO INDUCTO MICRO INDUCTO	? 150UH OR 12UH OR 12UH	
C233 C237 C238 C239 C240	1-163-109-00 1-163-033-00 1-163-033-00 1-163-021-00 1-163-038-00	CERAMIC CHIP 0.022MF CERAMIC CHIP 0.022MF CERAMIC CHIP 0.01MF	5% 10% 10%	50V 25V 25V 50V 25V	L206 L207 L208 L301 L302	1-407-161-XX 1-408-794-00 1-408-794-00 1-408-970-21 1-407-163-XX	INDUCTOR CHIP INDUCTOR CHIP MICRO INDUCTO	270UH 270UH 0R 10UH	
C241 C301 C302 C303 C304	1-163-038-00 1-163-021-00 1-163-021-00 1-124-462-00 1-163-021-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.01MF ELECT 10MF	20%	25V 50V 50V 16V 50V	L401 L402	1-408-970-21	MICRO INDUCTO MICRO INDUCTO NSISTOR	R 220UH R 10UH	
C305 C306 C307 C308 C309	1-163-021-00 1-163-038-00 1-163-021-00 1-163-021-00 1-123-617-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.1MF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.01MF	20%	50V 25V 50V 50V 16V	Q101 Q102 Q103 Q104 Q105	8-729-202-38 8-729-901-05 8-729-312-22	TRANSISTOR 2S TRANSISTOR 2S TRANSISTOR DT TRANSISTOR DT	C3326N A124EK A1122	
C401 C402 C403 C404 C405	1-163-141-00 1-163-021-00 1-163-141-00 1-163-117-00 1-163-117-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.001MF CERAMIC CHIP 100PF	10% 10% 5% 5%	50V 50V 50V 50V 50V	Q201 Q202 Q203 Q301 Q302	8-729-202-38 8-729-901-05 8-729-100-67	TRANSISTOR 2S TRANSISTOR 2S TRANSISTOR DT TRANSISTOR DT TRANSISTOR DT	C3326N A124EK C1623-L7	
C406 C407	1-163-117-00	CERAMIC CHIP 150PF CERAMIC CHIP 100PF	5% 5%	50 v 50 v	0303 0304 0307 0308	8-729-100-67 8-729-100-67 8-729-100-67	TRANSISTOR DTG TRANSISTOR 25G TRANSISTOR 25G TRANSISTOR 25G	C1623-L7 C1623-L7 C1623-L7	
CN002 CN003 CN004	1-562-629-11 *1-564-001-11 *1-564-005-00 *1-564-004-00	SOCKET, CONNECTOR (19P) PIN, CONNECTOR 2P PIN, CONNECTOR 6P PIN, CONNECTOR 5P PIN, CONNECTOR 8P			Q402 Q403 Q404	8-729-117-54 8-729-312-22	TRANSISTOR 25/ TRANSISTOR 25/ TRANSISTOR 25/ STOR	A1175	
CN006 CN007	*1-564-002-00 *1-564-002-00 *1-564-017-00	PIN, CONNECTOR 3P PIN, CONNECTOR 3P PIN, CONNECTOR 7P			R101 R102 R103 R104 R105		METAL CHIP	4.7K 5% 4.7K 5% 4.7K 5% 4.7K 5% 4.7K 5% 22K 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D101	<u>DIO</u> 8-719-100-03				R106	1-216-083-00	METAL CHIP	27K 5%	1/10W
	IC				R107 R108 R109 R110		METAL CHIP METAL CHIP	24K 5% 24K 5% 1.8K 5%	1/10W 1/10W 1/10W
IC001 IC002	8-752-003-40 8-752-003-40	IC CX20034 IC CX20034			R111	1-216-081-00	METAL CHIP	47K 5% 22K 5%	1/10W 1/10W
L101	<u>COI</u> 1-408-791-00	- INDUCTOR CHIP 150UH			R112 R113 R114	1-216-083-00 1-216-082-00 1-216-082-00	METAL CHIP METAL CHIP METAL CHIP	27K 5% 24K 5% 24K 5% 1.8K 5%	1/10W 1/10W 1/10W
L103 L104 L105 L106	1-407-189-XX 1-407-189-XX 1-408-970-21 1-407-161-XX	MICRO INDUCTOR 15UH MICRO INDUCTOR 15UH MICRO INDUCTOR 10UH MICRO INDUCTOR 22UH			R116 R117 R118	1-216-089-00 1-216-053-00 1-216-035-00	METAL CHIP METAL CHIP METAL CHIP	47K 5% 1.5K 5% 270 5%	1/10W 1/10W 1/10W 1/10W
L107	1-408-794-00	INDUCTOR CHIP 270UH		j				100 5% 100 5%	1/ 1 0W 1/ 1 0W

Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description			Remark
R121 R122 R123 R126 R127	1-216-053-00 1-216-683-11 1-216-684-11 1-216-061-00 1-216-089-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.5K 22K 24K 3.3K 47K	5% 0.50% 0.50% 5% 5%	-		R402 R403 R404 R405 R406	1-216-081-00 1-216-029-00 1-216-033-00 1-216-017-00 1-216-005-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 5% 150 5% 220 5% 47 5% 15 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R128 R129 R130 R131 R134	1-216-049-00 1-216-023-00 1-216-023-00 1-216-061-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 82 82 3.3K 100K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R407 R408 R421 R423	1-216-081-00 1-216-057-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 5% 2.2K 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W	
R135	1-216-097-00	METAL CHIP	100K	5%	1/10W			<u>VAR</u>	IABLE RESISTO	<u>R</u>		
R201 R202 R203 R204	1-216-065-00 1-216-065-00 1-216-065-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 4.7K 4.7K 4.7K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W			1-228-920-00 1-228-920-00 1-228-920-00 1-228-920-00	RES, ADJ, CA RES, ADJ, CA RES, ADJ, CA RES, ADJ, CA	RBON 2.2K RBON 2.2K		
R205	1-216-081-00	METAL CHIP	22K	5%	1/10W		*****	*****	*****	****	*****	*****
R206 R207 R208 R209	1-216-083-00 1-216-082-00 1-216-082-00 1-216-055-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	27K 24K 24K 1.8K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W			*A-7060-467-A	SP-2 BOARD, ************ (Including t	*****	rd)	
R210	1-216-089-00	METAL CHIP	47K	5%	1/10W			CAP	ACITOR			
R211 R212	1-216-081-00 1-216-083-00	METAL CHIP METAL CHIP	22K 27K	5% 5%	1/10W 1/10W		C001	1-124-907-00	ELECT	10MF	20%	50 V
R213 R214	1-216-082-00 1-216-082-00	METAL CHIP METAL CHIP	24K 24K	5% 5%	1/10W 1/10W		C002 C003 C004	1-163-038-00 1-163-117-00 1-163-117-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.1MF 100PF	5% 5%	25V 50V 50V
R215	1-216-055-00	METAL CHIP	1.8K	5%	1/10W		C020	1-124-907-00	ELECT	10MF	20%	50 V
R216 R217	1-216-089-00 1-216-053-00	METAL CHIP METAL CHIP	47K 1.5K	5% 5%	1/10W 1/10W		C021	1-163-038-00	CERAMIC CHIP	0.1MF		257
R218 R219	1-216-049-00 1-216-025-00	METAL CHIP METAL CHIP	1K 100	5% 5%	1/10W 1/10W		C022 C023 C024	1-163-038-00 1-163-038-00 1-163-038-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.1MF 0.1MF		25V 25V 25V
R220	1-216-025-00	METAL CHIP	100	5%	1/10W		C025	1-124-907-00	ELECT	10MF	20%	50 V
R221 R224	1-216-053-00 1-216-067-00	METAL CHIP METAL CHIP	1.5K 5.6K	5% 5%	1/10W 1/10W		C030	1-124-907-00	ELECT	10MF	20%	50 V
R225	1-216-067-00	METAL CHIP	5.6K	5%	1/10W		C031	1-163-038-00	CERAMIC CHIP		200	25 V
R229	1-216-023-00	METAL CHIP	82	5%	1/10W		C032	1-163-093-00	CERAMIC CHIP		5% 5%	50 V 50 V
R230	1-216-023-00	METAL CHIP	82	5%	1/10W		C033	1-163-093-00 1-163-038-00	CERAMIC CHIP		36	25 V
R231	1-216-061-00	METAL CHIP	3.3K	5%	1/10W				0500000	0 1115		0511
R232 R233	1-216-061-00 1-216-061-00		3.3K 3.3K	5% 5%	1/10W 1/10W		C051 C080	1-163-038 - 00 1-163-101 - 00	CERAMIC CHIP		5%	25V 50V
R234	1-216-097-00		100K	5%	1/10W		C081	1-163-101-00	CERAMIC CHIP	22PF	5%	50 V
R235 R301	1-216-097-00 1-216-089-00		100K 47K	5% 5%	1/10W 1/10W		C082 C083	1-131-345-00 1-123-816-00	TANTALUM ELECT	0.47MF 10MF	10% 20%	35 V 50 V
R302	1-216-073-00	METAL CHIP	10K	5%	1/10W		C084		CERAMIC CHIP			25V
R303 R304	1-216-045-00		680 56K	5% 5%	1/10W 1/10W		C085 C086	1-163-038-00	CERAMIC CHIP			25V 25V
	1-216-091-00	METAL CHIP	JUK	Jø	1/10#		C120	1-163-038-00	CERAMIC CHIP			25 V
R305	1-216-061-00		3.3K	5% 5%	1/10W		C121	1-163-038-00	CERAMIC CHIP	0.1MF		25 V
R306 R307	1-216-085-00 1-216-077-00		33K 15K	5% 5%	1/10W 1/10W		C122	1-163-117-00	CERAMIC CHIP	100PF	5%	50 V
R308	1-216-039-00	METAL CHIP	390	5%	1/10W		C123	1-163-117-00	CERAMIC CHIP	100PF	5%	50 V
R309	1-216-047-00		820	5%	1/10W		C201		CERAMIC CHIP		10%	50 V 25 V
R310	1-216-035-00	METAL CHIP	270	5%	1/10W		C202 C203	1-124-908-11 1-163-035-00	ELECT CERAMIC CHIP	22MF 0.047MF	20% 10%	25V 25V
R311	1-216-041-00	METAL CHIP	470	5%	1/10W							
R401	1-216-085-00	METAL CHIP	33K	5%	1/10W		J C204	1-124-249-00	ELECT	0.1MF	20%	50 V

SP-2

Ref.No	Part No.	Description			0	ln.e. 11.	D. A. N.				
	Tar C No.	bescr ip cron			Remark	Ref.No	Part No.	<u>Description</u>			Remark
C205	1-163-038-00	CERAMIC CHIP		0.00	25 V	C262	1-163-035-00			10%	25V
C206 C207	1-124-283-00 1-163-038-00	ELECT CERAMIC CHIP	4.7MF	20%	16 V	C264	1-163-109-00	CERAMIC CHIP		5%	50V
C208	1-123-613-00	ELECT	3.3MF	20%	25 V 50 V	C490 C491	1-101-006-00 1-101-006-00	CERAMIC CHIE			50V
C209	1-124-240-00	ELECT	10MF	20%	25 V	C491	1-163-059-00	CERAMIC CHIP		10%	50V
			20,11	200	20.	C500	1-163-035-00	CERAMIC CHIP		10%	50V 50V
C210	1-124-240-00	ELECT	10MF	20%	25 V	C501	1-163-035-00	CERAMIC CHIP			50V 50V
C211	1-124-240-00	ELECT	10MF	20%	25 v						
C212 C213	1-124-240-00 1-124-255-00	ELECT	10MF	20%	25 V	C502	1-163-131-00	CERAMIC CHIP		10%	50 V
C214	1-124-903-00	ELECT ELECT	1MF 1MF	20% 20%	50 V 50 V	C600	1-163-035-00	CERAMIC CHIP			50V
	1 12 . 300 00	LLLOI	TI.	200	301	C601 C602	1-163-035-00 1-123-617-00	CERAMIC CHIP		10%	25V
C215	1-124-903-00	ELECT	1MF	20%	50 v	C603	1-163-035-00	CERAMIC CHIP	10MF 0 047MF	20%	16V 50V
C216	1-124-229-00	ELECT	33MF	20%	10 V	C604	1-163-035-00	CERAMIC CHIP			507
C217	1-124-229-00	ELECT	33MF	20%	10 V	ŀ		•			
C218 C219	1-124-229-00 1-163-117-00	ELECT CERAMIC CHIP	33MF	20%	10 V	C605	1-163-109-00	CERAMIC CHIP		5%	50 V
0213	1-103-117-00	CERAMIC CHIP	10027	5%	50 v	C606	1-163-101-00	CERAMIC CHIP		5%	50V
C220	1-163-117-00	CERAMIC CHIP	100PF	5%	50 V	C607 C608	1-163-109-00 1-163-035-00	CERAMIC CHIP		5%	50V
C221	1-124-907-00	ELECT	10MF	20%	50 V	C609	1-163-035-00	CERAMIC CHIP			50V 50V
C222	1-163-021-00	CERAMIC CHIP			50 v	C610	1-163-035-00	CERAMIC CHIP			50 V
C223 C224	1-163-021-00	CERAMIC CHIP			50 V						
6224	1-163-021-00	CERAMIC CHIP	U.UIMF		50 V	C611	1-123-617-00	ELECT	10MF	20%	16V
C225	1-163-021-00	CERAMIC CHIP	0.01MF		50 V	C612 C613	1-163-035-00	CERAMIC CHIP		• 001	50V
C226	1-163-038-00	CERAMIC CHIP			25V	C614	1-163-017-00 1-123-617-00	CERAMIC CHIP	0.004/MF 10MF	10% 20%	50V 16V
C228	1-163-021-00	CERAMIC CHIP		10%	50 v	C615	1-163-035-00	CERAMIC CHIP		206	50V
C229	1-124-907-00	ELECT	10MF	20%	50 v	C616	1-123-610-00	ELECT	0.47MF	20%	50V
C230	1-163-01/-00	CERAMIC CHIP	0.0047MF	10%	50 v						
C231	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50 V	C617	1-124-258-00	ELECT	3.3MF	20%	50V
C232	1-163-692-11			5%	50 v	C618 C619	1-124-239-00 1-163-101-00	ELECT CERAMIC CHIP	6.8MF	20% 5%	10V 50V
C233	1-163-692-11	CERAMIC CHIP		5%	50 v	C620	1-163-035-00	CERAMIC CHIP		36	50V 50V
C234 C235	1-163-117-00	CERAMIC CHIP		5%	50 V	C621	1-163-099-00	CERAMIC CHIP		5%	50V
0233	1-163-021-00	CERAMIC CHIP	U.UIMF		50 V	C624	1-163-085-00	CERAMIC CHIP	2PF	0.25PF	500
C236	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50 V	C627	1-163-101-00	CERAMIC CHIP	22DF	5%	50 V
C237	1-124-645-11	ELECT	10MF	20%	16 V	C628	1-163-035-00	CERAMIC CHIP		3.6	50V
C238 C239	1-124-002-11	ELECT	1MF	20%	50V	C629	1-123-617-00	ELECT	10MF	20%	167
C240	1-163-021-00	CERAMIC CHIP		10%	50V 25V	C630	1-163-035-00	CERAMIC CHIP			50 V
0210	1 103-033-00	CERAMIC CHIP	0.022MF	106	25 V	C632	1-163-035-00	CERAMIC CHIP			50V
C241	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25 V	C633	1-163-035-00	CERAMIC CHIP	U.04/MF		50V
C242	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50 V	C634	1-163-035-00	CERAMIC CHIP	0.047MF		507
C243 C244	1-124-648-00	ELECT	4.7MF	20%	35 V	C635	1-123-617-00	ELECT	10MF	20%	167
C245	1-124-907-00 1-163-038-00	ELECT CERAMIC CHIP	10MF	20%	50V	C636	1-163-035-00	CERAMIC CHIP			50 V
02.10	1-103-030-00	CERMINE CHIP	O.THE		25V	C637 C638		CERAMIC CHIP			50V
C246	1-163-035-00	CERAMIC CHIP	0.047MF	10%	257	C639	1-163-035-00 1-123-617-00	CERAMIC CHIP	0.04/MF 10MF	20%	50V 16V
C247	1-124-656-00	ELECT	2.2MF	20%	50 V	0003	1 125-017-00	LLLUI	TOMF	20%	104
C248 C249	1-163-021-00	CERAMIC CHIP	0.01MF		50 V	C645	1-163-035-00	CERAMIC CHIP	0.047MF		50 V
C250	1-124-499-11	CERAMIC CHIP	IMF 0.047MC	20%	50 V	C646	1-163-035-00	CERAMIC CHIP	0.047MF		50 V
	1 103-033-00	CERMINIC CRIF	0.047146	10%	257	C647	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C251		CERAMIC CHIP	0.047MF	10%	257	C648 C649	1-163-035-00 1-163-035-00	CERAMIC CHIP	U.U4/MF		50V 50V
C255	1-124-445-00		100MF	20%	167	C650	1-163-035-00	CERAMIC CHIP	0.047MF		50V 50V
C256 C257	1-124-445-00		100MF	20%	167						
C257	1-124-927-11 1-124-904-00		4.7MF 2.2MF	20% 20%	50V	C651	1-163-035-00	CERAMIC CHIP	0.047MF		50V
	· 12+ 30+ 00	LLLUI	C • CI'II	20%	50V	C652 C653	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C259	1-163-021-00			10%	50 V	C654	1-163-035-00 1-163-035-00	CERAMIC CHIP	0.04/MF		50V 50V
C260	1-163-021-00	CERAMIC CHIP	0.01MF		50 V	C701	1-163-021-00	CERAMIC CHIP	0.01MF		50V 50V
C261	1-163-035-00	CERAMIC CHIP	U.047MF	10%	257	C702	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V
						C703	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50 v

Dof No	Dant No	Decemination		Domank	Dof No	Dant No	Description	Remark
Ref.No	Part No.	Description		Remark		Part No.		Nemai k
C704 C705	1-163-021-00 1-163-033-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.022MF	10% 10%	50V 25V	-	*1-564-002-00 *1-564-001-11	PIN, CONNECTOR 3P PIN, CONNECTOR 2P	
C706	1-163-033-00	CERAMIC CHIP 0.022MF	10%	257	CN020	*1-564-005-00	PIN, CONNECTOR 6P	
C707 C708	1-124-908-11 1-163-017-00	ELECT 22MF CERAMIC CHIP 0.0047MF	20% 10%	25V 50V		*1-564-004-00 *1-564-001-11	PIN, CONNECTOR 5P PIN, CONNECTOR 2P	
	1-103-017-00							
C709 C710	1-163-035-00 1-124-256-00	CERAMIC CHIP 0.047MF ELECT 1.5MF	10% 20%	25V 50V		*1-564-001-11 *1-564-010-11	PIN, CONNECTOR 2P PIN, CONNECTOR 11P	
C711	1-163-034-00	CERAMIC CHIP 0.033MF	10%	25V	CN213	*1-564-014-00	PIN, CONNECTOR 4P	
C712 C713	1-163-105-00 1-163-123-00	CERAMIC CHIP 33PF CERAMIC CHIP 180PF	5% 5%	50V 50V		*1-564-005-00 *1-564-005-00		
					Ì			
C714 C715	1-163-271-00 1-163-038-00	CERAMIC CHIP 680PF CERAMIC CHIP 0.1MF	5%	50V 25V		*1-564-006-11 *1-564-002-00	PIN, CONNECTOR 7P PIN, CONNECTOR 3P	
C716	1-163-038-00	CERAMIC CHIP 0.1MF		25V	CN601	*1-564-006-11	PIN, CONNECTOR 7P	
C717	1-163-038-00	CERAMIC CHIP 0.1MF		25V 50V		*1-564-015-00 *1-564-007-00		
C718	1-163-021-00	CERAMIC CHIP 0.01MF			ļ		•	
C719 C720	1-124-904-00 1-163-038-00	ELECT 2.2MF CERAMIC CHIP 0.1MF	20%	50V 25V		*1-564-001-11 *1-564-002-00	PIN, CONNECTOR 2P PIN, CONNECTOR 3P	
C721	1-163-145-00	CERAMIC CHIP 0.0015MF	5%	507	0.1007	1 00, 002 00	TH, COMESTON OF	
C722 C723	1-163-101-00 1-163-021-00	CERAMIC CHIP 22PF CERAMIC CHIP 0.01MF	5% 10%	50V 50V		DIO	<u>DE</u>	
6723	1-103-021-00	CERAPIC CHIP O'OTHI	10%	301	D020	8-719-101-23	DIODE 1SS123	
C724	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V 50V	D021 D060	8-719-101-23	DIODE 1SS123 DIODE 1SS119	
C725 C726	1-163-111-00 1-163-133-00	CERAMIC CHIP 56PF CERAMIC CHIP 470PF	5% 5%	50V 50V	D080	8-719-911-19 8-719-100-03	DIODE 133119 DIODE 152835	
C727	1-163-021-00	CERAMIC CHIP 0.01MF	0.00	50V	D081	8-719-100-03	DIODE 1S2835	
C728	1-124-904-00	ELECT 2.2MF	20%	50V	D082	8-719-100-05	DIODE 1S2837	
C729	1-163-038-00		F~	257	D106	8-719-106-71	DIODE RD12M-B2	
C730 C731	1-163-123-00 1-163-121-00		5% 5%	50V 50V	D107 D108	8-719-106-71 8-719-106-71	DIODE RD12M-B2 DIODE RD12M-B2	
C732	1-163-265-91	CERAMIC CHIP 390PF	5%	50V	D120	8-719-100-03	DIODE 182835	
C733	1-163-111-00	CERAMIC CHIP 56PF	5%	50V	D203	8-719-200-27	DIODE E10DS2	
C734	1-163-268-00		5%	50V	D204	8-719-100-03	DIODE 1S2835	
C735 C736	1-163-035-00 1-163-021-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF	10% 10%	25V 50V	D205 D206	8-719-801-48 8-719-100-03	DIODE 1SS193 DIODE 1S2835	
C740	1-124-904-00		20%	50V	D208	8-719-100-03	DIODE 1S2835	
	CON	NNECTOR			D209	8-719-100-05	DIODE 1S2837	
CHOOL					D211	8-719-101-23	DIODE 188123	
		PIN, CONNECTOR 7P PIN, CONNECTOR 7P			D212 D213	8-719-100-03 8-719-100-03	DIODE 1S2835 DIODE 1S2835	
CN003	*1-564-003-00	PIN, CONNECTOR 4P			D214	8-719-100-03	DIODE 1S2835	
	*1-564-001-11 *1-564-004-00				D215	8-719-101-23	DIODE 1SS123	
					D216	8-719-101-23	DIODE 1SS123	
	*1-564-002-00 *1-564-004-00				D217 D218	8-719-801-48 8-719-100-05	DIODE 1SS193 DIODE 1S2837	
CN008	*1-564-001-11	PIN, CONNECTOR 2P			D220	8-719-200-27		
	*1-564-006-11 *1-564-001-11				D221	8-719-200-27	DIODE E10DS2	
		ŕ			D222	8-719-200-27	DIODE E10DS2	
	*1-564-004-00 *1-564-006-11				D223	8-719-100-05 8-719-801-48	DIODE 1S2837 DIODE 1SS193	
CN013	*1-564-002-00	PIN, CONNECTOR 3P			D226	8-719-100-03	DIODE 153155	
CN014 CN015	*1-564-003-00 *1-564-002-00	PIN, CONNECTOR 4P PIN, CONNECTOR 3P			D227	8-719-801-48	DIODE 1SS193	
		•			D230	8-719-105-82	DIODE RD5.1M	
CN016	*1-564-001-11 *1-564-001-11	PIN, CONNECTOR 2P PIN, CONNECTOR 2P			D231 D232		DIODE 1SS193 DIODE 1SS123	
0.401/	1-204-001-11	FIN, COMMECTUR ZF			1 0535	0-119-101-23	DIODE 1331E3	

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Domank
D233 D390 D391 D392 D393	8-719-801-48 8-719-100-05 8-719-100-03 8-719-801-48 8-719-100-05	DIODE 1SS193 DIODE 1S2837 DIODE 1S2835 DIODE 1SS193 DIODE 1S2837		1C502 1C600 1C601 1C602	8-759-200-78 8-752-010-20 8-752-321-97 8-759-911-18	IC TC4030BF IC CX20102 IC CXD1066Q	<u>Remark</u>
D501 D502 D600 D601 D603	8-719-118-29 8-719-100-05 8-719-108-24 8-719-100-05 8-719-100-03	DIODE 1SS220 DIODE 1S2837 DIODE 1SS223 DIODE 1S2837 DIODE 1S2835		IC606 IC701	8-759-911-19 8-752-010-30 8-759-915-30 8-759-928-56 8-759-193-24	IC CX20103 IC CX23078 IC CXA1042M	
D604 D701 D702	8-719-100-05 8-719-100-05 8-719-100-03	DIODE 1S2837 DIODE 1S2837 DIODE 1S2835		J101	JAC 1-507-678-21		
	FIL	TER		J102 J103	1-507-678-21 1-562-732-11	SOCKET 5P	
	1-235-829-11 1-235-830-11	BPF (15KHz) BPF (45KHz)		<u> </u> 	<u>CO1</u>		
IC002	8-752-800-91	IC CXP5048H-069Q IC CXP5048H-070Q IC UPD75104G-519-1B		L601 L602 L603 L604 L605	1-408-421-00 1-408-421-00	MICRO INDUCTOR 100UH	
IC004	8-759-201-01 8-759-201-61	IC TC4066BF IC TC40H004F		L606 L607 L608	1-408-421-00 1-408-421-00	MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH	
IC008 IC009 IC010	8-759-801-60 8-759-913-67 8-759-908-81 8-759-920-94	IC LB1640N IC MB3763P IC MB3763PF IC MSM6411B-19RS		L609 L610 L611	1-408-421-00 1-408-421-00 1-408-421-00		
IC011	8-759-200-68	IC TC4011BF				LINK	
IC120 IC121 IC201	8-759-201-53 8-759-111-62 8-759-920-94 8-759-803-47 8-759-100-94	IC TC40H000F IC UPD7566G-506 IC MSM6411B-19RS IC LA5005M IC UPC358G2		PS003 <u>/</u> PS004 <u>/</u>	.1-532-685-00 .1-532-637-00	LINK, IC (ICP-N5) LINK, IC (ICP-N20) LINK, IC (ICP-N25) LINK, IC (ICP-N20)	
IC204 IC205	8-759-929-55 8-759-932-07	IC MB64H428PF IC MB674101PF			TRA	NSISTOR	
IC206 IC207	8-759-701-43 8-759-202-45 8-759-802-79 8-759-100-94 8-752-003-50	IC NJM3414D IC CX20114 IC LB1616M IC UPC358G2 IC CX20035		Q010 Q011 Q012 Q013 Q014	8-729-901-01 8-729-901-01 8-729-901-01	TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK	
IC211 IC212 IC213		IC BA6303F IC NJM3403AM IC TC4066BF		Q015 Q020 Q021 Q022	8-729-901-05 8-729-901-01 8-729-901-05	TRANSISTOR DTA144EK TRANSISTOR DTA124EK TRANSISTOR DTC144EK TRANSISTOR DTA124EK	
IC215 IC216 IC217 IC218	8-759-100-94 8-759-200-81 8-759-200-81 8-759-200-81	IC TC4052BF IC UPC358G2 IC TC4053BF IC TC4053BF IC TC4053BF		Q023 Q054 Q055 Q060 Q070	8-729-199-92 8-729-901-01 8-729-901-01 8-729-901-06 8-729-901-01	TRANSISTOR 2SD999 TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTA144EK TRANSISTOR DTC144EK	
IC220 IC500	8-759-100-94 8-759-200-90 8-759-111-96 8-759-200-81	IC UPC358G2 IC TC4538BF IC UPD75106G-518-1B IC TC4053BF		Q071 Q080	8-729-374-02 8-729-901-01 8-729-901-01	TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK	

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	<u>Description</u>		Remark
0082	8-729-901-01	TRANSISTOR DTC144EK		Q243	8-729-901-01	TRANSISTOR DTC1	44FK	
0083	8-729-100-67	TRANSISTOR 2SC1623-L7		0244		TRANSISTOR DTC1		
0084		TRANSISTOR DTC144EK		0245		TRANSISTOR DTA1		
0085	8-729-901-01			Q246	8-729-901-01	TRANSISTOR DTC1	14EK	
0086	8-729-100-76	TRANSISTOR 2SA812		0248		TRANSISTOR DTC1		
4000	0 .25 200 / 0	THE TOTAL CONCLE		0249		TRANSISTOR DTAL		
0087	8-729-901-01	TRANSISTOR DTC144EK		0250	8-729-100-67	TRANSISTOR 2SC1	523 ₋₁ 7	
0088		TRANSISTOR 2SA812		4235	0 723 100 07	18A45151010 2501	J2J-L/	
0090	8-729-901-01	TRANSISTOR DTC144EK		0251	8-729-100-67	TRANSISTOR 2SC1	623-17	
0091	8-729-901-01			0252		TRANSISTOR 2SA8		
0103		TRANSISTOR DTA144EK		Q253		TRANSISTOR 2SA8		
•				0254		TRANSISTOR DTC1		
Q120	8-729-901-01	TRANSISTOR DTC144EK		0256		TRANSISTOR DTC14		
0121	8-729-901-01	TRANSISTOR DTC144EK		Q257	8-729-901-06	TRANSISTOR DTA1	14FK	
Q122	8-729-901-01	TRANSISTOR DTC144EK		0258		TRANSISTOR DTA1		
Q123	8-729-901-01	TRANSISTOR DTC144EK		1 `				
Q201	8-729-901-04	TRANSISTOR DTA114EK		0260	8-729-199-92	TRANSISTOR 2SD99	99	
				0261		TRANSISTOR 2SD99		
Q202	8-729-900-53	TRANSISTOR DTC114EK		0262		TRANSISTOR 2SD99		
Q203	8-729-201-78	TRANSISTOR 2SD1406		Q263	8-729-901-06	TRANSISTOR DTA14	14EK	
Q204	8-729-100-67	TRANSISTOR 2SC1623-L7		Q264		TRANSISTOR DTA11		
Q205	8-729-100-66	TRANSISTOR 2SC1623		Q280	8-729-100-67	TRANSISTOR 2SC16	523-L7	
Q206	8-729-804-67	TRANSISTOR 2SB1133-R		Q281	8-729-901-01	TRANSISTOR DTC14	4EK	
_		TRANSISTOR DTC114EK TRANSISTOR 2SD1406 TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623 TRANSISTOR 2SB1133-R TRANSISTOR DTA144EK						
0207	8-729-901-06	TRANSISTOR DTA144EK		Q282	8-729-901-01	TRANSISTOR DTC14	I4EK	
Q208		TRANSISTOR 2SA812		Q390	8-729-901-01	TRANSISTOR DTC14	4EK	
Q209		TRANSISTOR 2SD1406		Q401		TRANSISTOR DTC14		
Q210	8-729-901-01	TRANSISTOR DTC144EK		Q480	8-729-900-89	TRANSISTOR DTC14	I4ES	
Q211	8-729-901-01	TRANSISTOR DTC144EK		Q481	8-729-900-89	TRANSISTOR DTC14	4ES	
0010	0 700 105 00	T04W070700 0044005		Q482		TRANSISTOR DTC14		
0212		TRANSISTOR 2SA1385		Q500	8-729-901-01	TRANSISTOR DTC14	I4EK	
0213	8-729-100-67	TRANSISTOR 2SC1623-L7		0504				
Q214 Q215		TRANSISTOR DTC144EK		Q501	8-729-901-01	TRANSISTOR DTC14	4EK	
Q215	8-729-901-01 8-729-901-01	TRANSISTOR DTC144EK		Q502		TRANSISTOR DTC14		
QZIO	0-729-901-01	TRANSISTOR DTC144EK		0601		TRANSISTOR 2SC16		
Q217	8_720 001 01	TRANSISTOR DTC144EK		0602	8-729-901-01	TRANSISTOR DTC14	4EK	
Q218	8-729-113-33			Q604 Q605	9 720 001 01	TRANSISTOR DTA14	4 E K	
Q219	8-729-113-33	TRANSISTOR 2SB733-4		Q606	9 720 001 01	TRANSISTOR DTC14 TRANSISTOR DTC14	4CK	
Q220	8-729-100-76	TRANSISTOR 2SA812		QUUU	0-729-901-01	TRANSISTOR DICIA	451	
Q221		TRANSISTOR 2SA812		Q701	8_729_100_67	TRANSISTOR 2SC16	22-17	
,	0 .23 100 / 0	THRESTSTON ESHOLE		0702	8-729-100-67	TRANSISTOR 25C16	23-17	
Q222	8-729-177-33	TRANSISTOR 2SD773-4		0703	8-729-901-01	TRANSISTOR DTC14	AFK	
0223	8-729-100-67	TRANSISTOR 2SC1623-L7		0704	8-729-100-76	TRANSISTOR 2SA81	2	
Q224	8-729-177-33	TRANSISTOR 2SD773-4		0705	8-729-100-67	TRANSISTOR 2SC16	23-17	
Q225	8-729-100-67	TRANSISTOR 2SC1623-L7		0706	8-729-100-67	TRANSISTOR 2SC16	23-17	
Q226	8-729-901-01	TRANSISTOR DTC144EK		Q707	8-729-100-67	TRANSISTOR 2SC16	23-L7	
0227	8-729-901-06	TRANSISTOR DTA144EK		Q708		TRANSISTOR 2SC16		
Q228		TRANSISTOR DTC144EK		Q709	8-729-100-76	TRANSISTOR 2SA81	2	
0229	8-729-901-06	TRANSISTOR DTA144EK		Q710		TRANSISTOR 2SC16		
Q230	8-729-901-01	TRANSISTOR DTC144EK		Q711		TRANSISTOR 2SC16		
Q232	8-729-901-06	TRANSISTOR DTA144EK		Q712	8-729-901-01	TRANSISTOR DTC14		
Q233	8.720 001 01	TRANSISTOR RTG14454		0713	8-729-100-67	TRANSISTOR 2SC16		
Q235 Q235	8-729-901-01 8-729-901-01	TRANSISTOR DTC144EK		0714	8-729-901-01	TRANSISTOR DTC14		
Q236	8-729-901-01	TRANSISTOR DTC144EK TRANSISTOR DTC144EK		0715	8-729-100-76	TRANSISTOR 2SA81		
Q237	8-729-901-06			0716	8-729-100-67	TRANSISTOR 2SC16		
Q238	8-729-901-01	TRANSISTOR DTA144EK		Q717	0-129-901-01	TRANSISTOR DTC14	4LK	
4200	0 /23-301-01	TRANSISTOR DTC144EK			DE C	TOTOR		
Q239	8-729-901-01	TRANSISTOR DTC144EK			KE S	<u>ISTOR</u>		
0240	8-729-901-01	TRANSISTOR DTC144EK		R001	1-216-073-00	METAL CHIP 10	V 59	1/104
0242	8-729-901-01	TRANSISTOR DTC144EK		R002	1-216-073-00	METAL CHIP 10		1/10W 1/10W
•	501 01	THE STORE BLOTTEN		· NOOL	1 110-0/3-00	HEIME CHIF IU	N 36	1/10W

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description Description				Remark
R003 R004 R005 R006 R007	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R098 R099 R100 R101 R102	1-216-113-00 1-216-073-00 1-216-025-00 1-216-073-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	470K 10K 100 10K 100K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R008 R010 R011 R012 R013	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R106 R120 R121 R123 R151	1-216-065-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
RO14 RO15 RO16 RO18 RO19	1-216-061-00 1-216-081-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 22K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R152 R153 R154 R155 R156	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R020 R021 R022 R023 R024	1-216-073-00 1-216-295-00 1-216-073-00 1-216-073-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 0 10K 10K 470	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R157 R158 R160 R161 R162	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R025 R026 R027 R028 R029	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R163 R170 R171 R200 R202	1-216-073-00 1-216-061-00 1-216-097-00 1-246-403-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP CARBON METAL CHIP	10K 3.3K 100K 1.2 100K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/4W 1/10W	
R030 R031 R032 R033 R034	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R203 R204 R205 R206 R207	1-216-055-00 1-216-065-00 1-216-049-00 1-216-065-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.8K 4.7K 1K 4.7K 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R039 R040 R050 R051 R052	1-216-073-00 1-216-295-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 0 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R208 R209 R210 R211 R212	1-216-073-00 1-216-071-00 1-216-073-00 1-216-295-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 8.2K 10K 0 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R058 R070 R071 R072 R073	1-216-073-00 1-216-081-00 1-216-051-00 1-247-712-11 1-249-447-11	METAL CHIP	10K 22K 1.2K 820 1	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/4W 1/4W		R214 R215 R216 R217 R218	1-216-105-00 1-216-113-00 1-216-663-11 1-216-669-11 1-216-059-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	220K 470K 3.3K 5.6K 2.7K	5% 5% 0.50% 0.50% 5%	1/10W 1/10W 1/16W 1/16W 1/10W	
R079 R080 R081 R082 R083	1-216-097-00 1-216-001-00 1-216-081-00 1-216-065-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP	100K 10 22K 4.7K 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R219 R220 R221 R222 R223	1-216-113-00 1-216-025-00 1-216-053-00 1-216-295-00 1-216-025-00	METAL CHIP	470K 100 1.5K 0 100		1/10W 1/10W 1/10W 1/10W 1/10W	
R084 R085 R086 R087 R088	1-216-025-00 1-216-073-00 1-216-097-00 1-216-073-00 1-216-089-00	METAL CHIP METAL CHIP METAL CHIP	100 10K 100K 10K 47K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R224 R225 R226 R227 R228	1-216-081-00 1-216-085-00 1-216-073-00 1-216-081-00 1-216-033-00	METAL CHIP	22K 33K 10K 22K 22O	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R089 R090 R097	1-216-073-00 1-216-073-00 1-216-113-00	METAL CHIP	10K 10K 470K	5% 5% 5%	1/10W 1/10W 1/10W		R229 R230 R231	1-216-081-00 1-216-101-00 1-216-049-00	METAL CHIP	22K 150K 1K	5% 5% 5%	1/10W 1/10W 1/10W	

Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R232 R233 R234 R235 R236	1-216-304-11 1-216-304-11 1-216-304-11 1-216-295-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3 3.3 3.3 0 100K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R285 R286 R287 R288 R289	1-216-061-00 1-216-073-00 1-216-049-00 1-216-049-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 10K 1K 1K 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R237 R238 R239 R240 R241	1-216-068-00 1-216-069-00 1-216-675-11 1-216-683-11 1-216-667-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	6.2K 6.8K 10K 22K 4.7K	5% 0.50% 0.50%	1/16W		R290 R291 R292 R293 R294	1-216-073-00 1-216-073-00 1-216-295-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 0 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R242 R243 R244 R245 R246	1-216-683-11 1-216-681-11 1-216-681-11 1-216-121-00 1-216-681-11	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 18K 18K 1M 18K	0.50% 0.50% 5%			R295 R296 R297 R298 R299	1-216-103-00 1-216-121-00 1-216-097-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	180K 1M 100K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R247 R248 R249 R250 R251	1-216-080-00 1-216-080-00 1-216-080-00 1-216-080-00 1-216-080-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	20K 20K 20K 20K 20K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R300 R301 R303 R305 R306	1-216-073-00 1-216-073-00 1-216-073-00 1-216-085-00 1-216-077-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 33K 15K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R252 R253 R254 R255 R256	1-216-080-00 1-216-080-00 1-216-080-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	20K 20K 20K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R307 R308 R309 R310 R311	1-216-043-00 1-216-049-00 1-216-073-00 1-216-049-00 1-216-113-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560 1K 10K 1K 470K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R257 R258 R259 R260 R261	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R312 R313 R314 R315 R316	1-216-115-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560K 10K 10K 10K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R262 R263 R264 R265 R266	1-216-080-00 1-216-073-00 1-216-033-00 1-216-057-00 1-216-150-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	20K 10K 220 2.2K 10	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/8W		R317 R318 R319 R320 R321	1-216-073-00 1-216-073-00 1-216-085-00 1-216-685-11 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10K 33K 27K 10K	5% 5% 5% 0.50% 5%	1/10W 1/10W 1/10W 1/16W 1/10W	
R267 R268 R269 R270 R271	1-216-073-00 1-216-150-00 1-216-055-00 1-216-073-00 1-216-025-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 10 1.8K 10K 100	5% 5% 5% 5% 5%	1/10W 1/8W 1/10W 1/10W 1/10W		R322 R323 R324 R326 R327	1-216-089-00 1-216-073-00 1-216-099-00 1-216-109-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 10K 120K 330K 3.3K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R272 R273 R274 R275 R276	1-216-041-00 1-216-073-00 1-216-085-00 1-216-073-00 1-216-085-00	METAL CHIP	470 10K 33K 10K 33K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R328 R329 R330 R331 R332 R333	1-216-091-00 1-216-117-00 1-216-117-00 1-216-081-00 1-216-073-00	METAL CHIP	56K 680K 680K 22K 560K 10K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W 1/10W	
R277 R278 R279 R280 R281	1-216-073-00 1-216-071-00 1-216-061-00 1-216-061-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP	10K 8.2K 3.3K 3.3K 3.3K	5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R334 R335 R336 R337 R338	1-216-115-00 1-216-057-00 1-216-083-11 1-216-073-00 1-216-121-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	560K 2.2K 27K 10K 1M	5% 5% 5% 5% 5%	1/10V 1/10V 1/10V 1/10V 1/10V	
R282 R283 R284	1-216-061-00 1-216-073-00 1-216-061-00	METAL CHIP	3.3K 10K 3.3K	5%	1/10W 1/10W 1/10W		R339 R340 R341	1-216-089-00 1-216-663-11 1-216-667-11	METAL CHIP METAL CHIP	47K 3.3K	5% 0.50% 0.50%	1/10V 1/16V	

SP-2

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	<u>Description</u>				Remark
R342	1-216-073-00	METAL CHIP	10K	5%	1/10W		R401	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R343	1-216-073-00	METAL CHIP METAL CHIP	10K 1K	5% 5%	1/10W 1/10W		R402 R404	1-216-295-00 1-216-053-00	METAL CHIP METAL CHIP	0 1.5K	5% 5%	1/10W 1/10W	
R344 R345	1-216-049-00 1-216-105-00	METAL CHIP	220K	5%	1/10W		R405	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R346	1-216-105-00	METAL CHIP	220K	5%	1/10W		R406	1-216-295-00	METAL CHIP	0	5%	1/10W	
R347	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R408	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R348	1-216-089-00	METAL CHIP	47K	5%	1/10W		R470	1-216-295-00	METAL CHIP	0	5%	1/10W	
R349	1-216-049-00	METAL CHIP	1K_	5%	1/10W		R476	1-217-587-11	CARBON	0		1/4W	
R350	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R477	1-217-587-11	CARBON	0		1/4W	
R351	1-216-073-00	METAL CHIP	1 OK	5%	1/10W		R478	1-217-587-11	CARBON	U		1/4W	
R352	1-216-685-11	METAL CHIP	27K		1/16W		R502	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R353	1-216-663-11	METAL CHIP	3.3K		1/16W		R504	1-216-061-00 1-216-061-00	METAL CHIP METAL CHIP	3.3K 3.3K	5% 5%	1/10W 1/10W	
R354 R355	1-216-689-11 1-216-089-00	METAL CHIP METAL CHIP	39K 47K	5%	1/16W 1/10W		R505 R506	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R356	1-216-693-11		56K		1/16W		R508	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R357	1-216-691-11	METAL CHIP	47K	0.50%	1/16W		R509	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R358	1-216-663-11	METAL CHIP	3.3K		1/16W		R510	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R359	1-216-685-11	METAL CHIP	27K		1/16W		R511	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R360	1-216-073-00	METAL CHIP	10K	5%	1/10W		R514	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R361	1-216-085-00	METAL CHIP	33K	5%	1/10W		R515	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R362	1-216-073-00	METAL CHIP	10K	5%	1/10W		R516	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W		R517	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R364 R365	1-216-085-00	METAL CHIP	33K 100K	5% 5%	1/10W 1/10W		R518 R519	1-216-073-00 1-216-085-00	METAL CHIP METAL CHIP	10K 33K	5% 5%	1/10W 1/10W	
R366	1-216-097-00 1-216-097-00	METAL CHIP METAL CHIP	100K	5%	1/10W		R530	1-216-081-00	METAL CHIP	22K	5%	1/10W	
												-	
R367	1-216-089-00	METAL CHIP	47K	5%	1/10W		R607 R608	1-216-045-00 1-216-097-00	METAL CHIP METAL CHIP	680 100K	5% 5%	1/10W 1/10W	
R368 R370	1-216-085-00 1-216-097-00	METAL CHIP METAL CHIP	33K 100K	5% 5%	1/10W 1/10W		R609	1-216-049-00	METAL CHIP	166K	5%	1/10W	
R371	1-216-077-00	METAL CHIP	10K	5%	1/10W		R610	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R372	1-216-681-11	METAL CHIP	18K	0.50%	1/16W		R611	1-216-001-00	METAL CHIP	10	5%	1/10W	
R373	1-216-075-00	METAL CHIP	12K	5%	1/10W		R612	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R375	1-216-697-11	METAL CHIP	82K		1/16W		R613	1-216-041-00	METAL CHIP	470	5%	1/10W	
R376	1-216-107-00		270K	5%	1/10W		R614	1-216-045-00	METAL CHIP	680	5%	1/10W	
R377 R378	1-216-107-00	METAL CHIP	270K 10K	5% 5%	1/10W 1/10W		R615 R616	1-216-051-00 1-216-049-00	METAL CHIP METAL CHIP	1.2K 1K	5% 5%	1/10W 1/10W	
	1-216-073-00	METAL CHIP											
R379	1-216-073-00		10K	5%	1/10W		R617	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R380 R381	1-216-115-00		560K	5% 5%	1/10W 1/10W		R618 R619	1-216-071-00 1-216-051-00	METAL CHIP METAL CHIP	8.2K 1.2K	5% 5%	1/10W 1/10W	
R382	1-216-115-00 1-216-101-00		560K 150K	5%	1/10W		R620	1-216-645-11	METAL CHIP	560		1/16W	
R383	1-216-683-11		22K		1/16W		R621	1-216-073-00	METAL CHIP	1 OK	5%	1/10W	
R384	1-216-667-11	METAL CHIP	4.7K	0.50%	1/16W		R622	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R385	1-216-683-11	METAL CHIP	22K		1/16W		R623	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R386	1-216-667-11	METAL CHIP	4 7K	0.50%	1/16W		R624	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R388	1-216-073-00		10K	5% = 8	1/10W		R625	1-216-033-00		220 3.3K	5% 5%	1/10W 1/10W	
R390	1-216-073-00	METAL CHIP	10K	5%	1/10W		R626	1-216-061-00	METAL CHIP	3.31	3.6		
R391	1-216-097-00		100K	5%	1/10W		R627	1-216-081-00		22K	5% 5%	1/10W	
R392 R394	1-216-065-00		4.7K	5% 59	1/10W		R628 R630	1-216-079-00 1-216-295-00	METAL CHIP METAL CHIP	18K 0	5% 5%	1/10W 1/10W	
R395	1-216-035-00 1-216-073-00		270 10K	5% 5%	1/10W 1/10W		R632	1-216-295-00	METAL CHIP	33K	5% 5%	1/10W	
R396	1-216-693-11		56K		1/16W		R633	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R397	1-216-295-00	METAL CHIP	0	5%	1/10W		R634	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R398	1-216-111-00	METAL CHIP	390K	5%	1/10W		R635	1-216-029-00	METAL CHIP	150	5%	1/10W	
R399	1-216-073-00	METAL CHIP	10K	5%	1/10W		I R636	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description		Remark
R637 R638 R640 R641 R650	1-216-069-00 1-216-069-00 1-216-073-00 1-216-085-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	6.8K 5 10K 5 33K 5	5% 1/10' 5% 1/10' 5% 1/10' 5% 1/10' 5% 1/10'	1 1 1	R741 R742 R743 R744 R745	1-216-061-00 1-216-061-00 1-216-065-00 1-216-079-00 1-216-088-00	METAL CHIP 3.3K METAL CHIP 3.3K METAL CHIP 4.7K METAL CHIP 18K METAL CHIP 43K	5% 1/10V 5% 1/10V 5% 1/10V 5% 1/10V 5% 1/10V	i i
R652 R653 R660 R661 R662	1-216-109-00 1-216-109-00 1-216-073-00 1-216-073-00 1-216-033-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	330K 5 10K 5 10K 5	5% 1/10 ¹ 5% 1/10 ¹ 5% 1/10 ¹ 5% 1/10 5% 1/10	ሳ ሳ ሳ	R746 R747 R748 R749 R750	1-216-059-00 1-216-057-00 1-216-067-00 1-216-049-00 1-216-049-00	METAL CHIP 2.7K METAL CHIP 2.2K METAL CHIP 5.6K METAL CHIP 1K METAL CHIP 1K	5% 1/100 5% 1/100 5% 1/100 5% 1/100 5% 1/100	i i
R663 R664 R665 R699 R701	1-216-033-00 1-216-097-00 1-216-097-00 1-216-049-00 1-216-105-00	METAL CHIP METAL CHIP METAL CHIP	100K ! 100K ! 1K !	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	۷ ۷ ۱	R751 R752 R753 R754 R755	1-216-081-00 1-216-081-00 1-216-065-00 1-216-057-00 1-216-057-00	METAL CHIP 22K METAL CHIP 22K METAL CHIP 4.7K METAL CHIP 2.2K METAL CHIP 2.2K	5% 1/10V 5% 1/10V 5% 1/10V 5% 1/10V 5% 1/10V	i i
R702 R703 R704 R705 R706	1-216-081-00 1-216-089-00 1-216-097-00 1-216-085-00 1-216-117-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	47K 100K 33K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	M M M	R756 R757 R758 R759 R760	1-216-065-00 1-216-057-00 1-216-057-00 1-216-070-00 1-216-069-00	METAL CHIP 4.7K METAL CHIP 2.2K METAL CHIP 2.2K METAL CHIP 7.5K METAL CHIP 6.8K	5% 1/10V 5% 1/10V 5% 1/10V 5% 1/10V 5% 1/10V	f f
R707 R708 R709 R710 R711	1-216-091-00 1-216-073-00 1-216-097-00 1-216-089-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	10K 100K 47K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	M M M	R761 R762 R764	1-216-085-00 1-216-073-00 1-216-073-00 VAR	METAL CHIP 10K	5% 1/10\\ 5% 1/10\\ 5% 1/10\\	V
R712 R713 R715 R716 R717	1-216-097-00 1-216-111-00 1-216-049-00 1-216-065-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP	390K 1K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	M M M	RV202 RV203 RV204	1-228-998-00 1-228-998-00 1-228-993-00 1-228-993-00 1-228-995-00	RES, ADJ, CARBON 4. RES, ADJ, CARBON 4.	AZE 220K .7K .7K	
R718 R719 R720 R721 R722	1-216-061-00 1-216-061-00 1-216-085-00 1-216-081-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 33K 22K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	W W	RV206 RV207 RV208 RV209 RV210	1-228-995-00 1-228-995-00 1-228-995-00 1-228-989-00 1-228-991-00	RES, ADJ, METAL GLA RES, ADJ, CARBON 22 RES, ADJ, METAL GLA RES, ADJ, CARBON 47 RES, ADJ, METAL GLA	2K NZE 22K 'O	
R723 R724 R725 R726 R727	1-216-079-00 1-216-085-00 1-216-045-00 1-216-073-00 1-216-077-00	METAL CHIP METAL CHIP METAL CHIP	33K 680 10K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	W W W		1-228-993-00 1-228-991-00 1-228-991-00 1-228-997-00 1-228-997-00	RES, ADJ, CARBON 4- RES, ADJ, METAL GLA RES, ADJ, METAL GLA RES, ADJ, METAL GLA RES, ADJ, METAL GLA	AZE 2.2K AZE 2.2K AZE 100K	
R728 R729 R730 R731 R732	1-216-027-00 1-216-035-00 1-216-039-00 1-216-072-00 1-216-057-00	METAL CHIP METAL CHIP METAL CHIP	270 390	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	W W	RV602 RV603 RV604		RES, ADJ, CARBON 2.	. 2K DOK DK	
R733 R734 R735 R736 R737	1-216-051-00 1-216-049-00 1-216-081-00 1-216-081-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP	1K 22K 22K	5% 1/10 5% 1/10 5% 1/10 5% 1/10 5% 1/10	W W W		1-553-725-21 1-553-725-21	SWITCH, SLIDE SWITCH, SLIDE		
R738 R739 R740	1-216-061-00 1-216-061-00 1-216-065-00	METAL CHIP	3.3K 3.3K 4.7K		W	X001 X002 X080	1-567-346-11 1-567-121-00	OSCILLATOR, CERAMIC VIBRATOR, CRYSTAL (OSCILLATOR, CERAMIC	4.19MHz)	

SP-2 RB-2 AU-22

Ref.No	Part No.	<u>Description</u>	Remark	Ref.No	Part No.	Description			Remark
X120 X201 X600	1-567-345-11 1-567-419-11	OSCILLATOR, CERAMIC (660K VIBRATOR, CRYSTAL (5.94MH VIBRATOR, LITHIUM TANTALA	łz) TE (11.58MHz)	C201 C203 C210 C211 C212	1-163-181-00 1-163-181-00 1-163-075-00 1-124-443-00 1-163-075-00		100PF 0.047MF 100MF	5% 5% 20%	50V 50V 50V 10V 50V
	*1-622-469-11	RB-2 BOARD *******		C213 C214	1-124-443-00 1-163-075-00	ELECT CERAMIC CHIP	100MF 0.047MF	20%	10V 50V
	CAP	ASITOR		C215 C216 C217	1-124-443-00 1-163-075-00 1-124-443-00	CERAMIC CHIP		20%	10V 50V
C450 C451	1-124-584-00 1-101-004-00		20% 10V 50V	C218	1-124-472-11	-	100MF 470MF	20% 20%	10V 10V
	CON	NECTOR		C219 C220	1-124-472-11 1-124-443-00	ELECT	470MF 100MF	20% 20%	10V 10V
CN450	*1-564-012-00	PIN, CONNECTOR 2P		C224 C225	1-163-075-00 1-163-075-00	CERAMIC CHIP CERAMIC CHIP	0.047MF 0.047MF		50V 50V
	<u>D10</u>	<u>DE</u>		C226	1-163-075-00	CERAMIC CHIP	0.047MF		50 V
D450 D451 D452		DIODE 1SS119 DIODE 1SS119 DIODE 1SS119		C227 C301 C305 C306	1-163-075-00 1-124-443-00 1-124-903-00 1-163-075-00	ELECT ELECT	100MF 1MF	20% 20%	50V 10V 50V 50V
	<u>IC</u>			C307	1-130-497-00		0.15MF	5%	50 v
IC450	8-759-932-04	IC MB88306P		C308 C309 C310	1-130-497-00 1-163-101-00	MYLAR CERAMIC CHIP	0.15MF 22PF	5% 5%	50V 50V
	TRA	NSISTOR		C311	1-163-117-00 1-130-472-00	MYLAR	0.0012MF	5% 5%	50V 50V
Q450 Q451 Q452 Q453 Q454	8-729-900-89 8-729-900-89 8-729-900-65 8-729-900-65 8-729-900-89	TRANSISTOR DTC144ES TRANSISTOR DTA144ES TRANSISTOR DTA144ES		C312 C313 C314 C321 C401	1-163-117-00 1-130-474-00 1-130-489-00 1-124-610-00 1-124-443-00	MYLAR	100PF 0.0018MF 0.033MF 10MF 100MF	5% 5% 5% 20% 20%	50V 50V 50V 50V 10V
Q455 Q456 Q457 Q458	8-729-900-74 8-729-900-74 8-729-900-89 8-729-900-65	TRANSISTOR DTC143TS TRANSISTOR DTC143TS TRANSISTOR DTC144ES TRANSISTOR DTA144ES		C405 C406 C407 C408	1-130-497-00 1-130-497-00	CERAMIC CHIP MYLAR MYLAR	0.15MF 0.15MF	20% 5% 5%	50V 50V 50V
	RES	ISTOR		C409		CERAMIC CHIP		5%	50 V
R450 R451 R452 R453 R454	1-247-429-00 1-247-429-00 1-247-886-00 1-249-438-11 1-249-433-11	CARBON 10K 5% CARBON 200K 5% CARBON 56K 5%	1/6W 1/6W 1/6W 1/6W 1/6W	C413	1-163-117-00 1-130-474-00	MYLAR CERAMIC CHIP MYLAR	0.0012MF	5% 5% 5% 5% 5%	50V 50V 50V 50V 50V
R455 R456 R457	1-215-477-00 1-247-429-00 1-249-417-11	CARBON 10K 5% CARBON 1K 5%	1/6W 1/6W 1/6W	C502 C507 C801	1-124-610-00 1-163-059-00 1-124-903-00 1-163-059-00 1-163-059-00	ELECT CERAMIC CHIP	1MF 0.01MF	20% 10% 20% 10% 10%	50V 50V 50V 50V 50V
		*********************	*********	C803	1-163-074-00	CERAMIC CHIP	0.033MF	10%	257
	~A-7000-468-A	AU-22 BOARD, COMPLETE ***********************************		C804 C805 C806	1-163-074-00 1-124-903-00	CERAMIC CHIP ELECT CERAMIC CHIP	0.033MF 1MF 0.01MF	10% 20% 10% 10%	25V 50V 50V 50V
	CAP	ACITOR		C822	1-163-059-00	CERAMIC CHIP	0.01MF	10%	50 v
C101	1-163-075-00	CERAMIC CHIP 0.047MF	50V	C823 C824	1-163-074-00 1-163-074-00	CERAMIC CHIP	0.033MF 0.033MF		25V 25V

Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description	<u>ı</u>	Remar	rk
	CERAMIC CHIP 0.01MF	10%	50V 50V		*A-7068-025-A 8-759-933-22		COMPLETE		
C840 1-124-892-11 C841 1-163-059-00 C901 1-124-902-00	CERAMIC CHIP 0.01MF ELECT 0.47MF	20% 10% 20%	10V 50V 50V			NSISTOR			
C902 1-163-015-00 C903 1-124-230-91 C904 1-124-610-91 C951 1-124-902-00	ELECT 0.47MF	10%	50V 10V 50V 50V	Q201 Q203 Q204 Q208 Q209	8-729-901-06 8-729-100-67 8-729-901-01 8-729-113-32 8-729-100-67	TRANSISTOR TRANSISTOR TRANSISTOR	2SC1623-L7 DTC144EK 2SB733		
COM	INECTOR			Q210 Q211	8-729-100-67 8-729-100-76				
CN201 *1-564-004-00 CN202 *1-564-003-00 CN204 *1-564-005-00 CN205 *1-564-003-00	PIN, CONNECTOR 4P PIN, CONNECTOR 6P PIN, CONNECTOR 4P			0212 0213 0301 0302	8-729-100-76 8-729-177-32 8-729-109-42 8-729-100-67	TRANSISTOR TRANSISTOR TRANSISTOR	2SA812 2SD773 2SK94-X2		
CN207 *1-564-002-00 CN208 *1-564-004-00 CN501 *1-564-004-00 CN801 *1-564-002-00 CN901 *1-564-001-11	PIN, CONNECTOR 5P PIN, CONNECTOR 5P PIN, CONNECTOR 3P			Q401 Q402 Q502 Q801	8-729-100-67 8-729-100-67 8-729-901-01 8-729-100-67	TRANSISTOR TRANSISTOR TRANSISTOR	2SK94-X2 2SC1623-L7 DTC144EK		
JAC	•			Q802 Q803	8-729-100-76 8-729-100-67	TRANSISTOR	2SC1623-L7		
CNJ251 1-507-500-61 CNJ253 1-507-500-61	JACK, PIN 2P JACK, PIN 2P			Q821 Q822 Q823	8-729-100-67 8-729-100-76 8-729-100-67	TRANSISTOR	2SA812		
DIG	DDE			Q901	8-729-100-76	TRANSISTOR	2SA812		
D2O3 8-719-110-47	DIODE RD18ESB DIODE RD18ESB				RES	ISTOR			
	DIODE RD2.7ES-B			R001	1-216-295-00 1-216-295-00	METAL CHIP	0 5	% 1/10W % 1/10W	
	<u>TER</u> FILTER, LOW PASS (15KHz	1		R003 R004 R005	1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 5	% 1/10W % 1/10W % 1/10W	
FL401 1-235-565-21 FL501 1-235-484-11 FL801 1-235-517-21	FILTER, LOW PASS (15KHz FILTER, BAND PASS (1.5M FILTER, BAND PASS (228. FILTER, BAND PASS (228.) HZ) 748KHz)		R006 R007 R008 R009	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP	0 5 0 5 0 5	% 1/10W % 1/10W % 1/10W % 1/10W	
<u>IC</u>				R010	1-216-295-00	METAL CHIP		% 1/10W	
IC101 8-759-937-21 IC201 8-759-240-52 IC203 8-759-145-58 IC301 8-759-700-40 IC302 8-759-240-51	IC TC4052BP IC UPC4558C IC NJM4560S			R011 R012 R013 R015 R016	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 5 0 5 0 5	% 1/10W % 1/10W % 1/10W % 1/10W % 1/10W	
IC303 8-759-700-40 IC304 8-759-700-40 IC401 8-759-700-40 IC402 8-759-240-51 IC403 8-759-700-40	IC NJM4560S IC NJM4560S IC TC4051BP			R017 R018 R019 R020 R021	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP	0 5 0 5 0 5	% 1/10W % 1/10W % 1/10W % 1/10W % 1/10W	
IC503 8-759-240-53	AF-20 BOARD, COMPLETE IC TC4053BP AD-12 BOARD, COMPLETE			R022 R023 R024 R025 R026	1-216-295-00 1-216-295-00 1-216-965-00 1-216-965-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5 0 5 0 5	% 1/10W % 1/10W % 1/10W % 1/10W % 1/10W	

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Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description				Remark
R027 R028 R029 R030 R031	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		R086 R087 R088 R089 R102	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	0 0 0 0 10K	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/10W	
R032 R033 R034 R035 R036	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		R104 R107 R110 R202 R203	1-216-081-00 1-216-073-00 1-216-073-00 1-249-393-11 1-216-295-00	METAL CHIP	22K 10K 10K 10 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/10W	
R037 R038 R039 R040 R041	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		R205 R206 R207 R210 R211	1-216-097-00 1-216-097-00 1-216-097-00 1-216-085-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 100K 100K 33K 10K		1/10W 1/10W 1/10W 1/10W 1/10W	
R042 R043 R044 R045 R046	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W		R216 R217 R218 R220 R221	1-216-097-00 1-216-097-00 1-216-097-00 1-216-081-00 1-216-089-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 100K 100K 22K 47K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R047 R053 R054 R055 R056	1-216-295-00 1-216-295-00 1-216-295-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/8W		R230 R233 R236 R237 R238	1-216-061-00 1-216-069-00 1-216-071-00 1-216-073-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 6.8K 8.2K 10K 3.3K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R057 R058 R059 R060 R061	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W		R240 R241 R242 R244 R305	1-216-061-00 1-216-074-00 1-216-061-00 1-216-081-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.3K 11K 3.3K 22K 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R062 R063 R064 R065 R066	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R307 R309 R310 R314 R315	1-216-079-00 1-216-093-00 1-216-099-00 1-247-837-00 1-247-841-00	METAL CHIP METAL CHIP METAL CHIP CARBON CARBON	18K 68K 120K 1.8K 2.7K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/6W	
R067 R068 R069 R070 R072	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R317 R318 R319 R320 R321	1-215-477-00 1-249-435-11 1-249-433-11 1-215-473-00 1-216-001-00	CARBON CARBON CARBON CARBON METAL CHIP	220K 33K 22K 150K 10	5% 5% 5% 5% 5%	1/6W 1/6W 1/6W 1/6W 1/10W	
R073 R074 R075 R076 R077	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00		0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R322 R327 R330 R331 R332	1-216-101-00 1-216-059-00 1-216-053-00 1-216-025-00 1-216-095-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	150K 2.7K 1.5K 100 82K	5% 5% 5% 5% 5%	1/1 OW 1/1 OW 1/1 OW 1/1 OW 1/1 OW	
R078 R079 R080 R081 R082	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W 1/8W 1/8W		R333 R335 R336 R337 R338	1-247-854-00 1-249-414-11 1-247-860-00 1-216-065-00 1-249-423-11	CARBON CARBON CARBON METAL CHIP CARBON	9.1K 560 16K 4.7K 3.3K	5% 5% 5% 5% 5%	1/6 W 1/6 W 1/6 W 1/1 OW 1/6 W	
R083 R084 R085	1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5%	1/8W 1/8W 1/8W		R339 R340 R345	1-249-423-11 1-247-844-00 1-249-427-11		3.3K 3.6K 6.8K	5% 5% 5%	1/6 W 1/6 W 1/6 W	

Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description			Remark
R346 R347 R349 R350 R351	1-216-025-00 1-216-087-00 1-216-059-00 1-249-425-11 1-249-423-11	METAL CHIP METAL CHIP METAL CHIP CARBON CARBON	100 39K 2.7K 4.7K 3.3K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/6W		R701 R801 R802 R803 R804	1-216-295-00 1-216-057-00 1-216-063-00 1-216-077-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 5% 2.2K 5% 3.9K 5% 15K 5% 10K 5%	1/10 1/10 1/10	W W W
R360 R362 R363 R370 R407	1-215-418-00 1-247-858-00 1-247-861-00 1-216-065-00 1-216-079-00	CARBON CARBON CARBON METAL CHIP METAL CHIP	750 13K 18K 4.7K 18K	5% 5% 5% 5% 5%	1/6W 1/6W 1/6W 1/10W 1/10W		R805 R806 R807 R808 R809	1-216-097-00 1-216-063-00 1-216-074-00 1-216-049-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100K 5% 3.9K 5% 11K 5% 1K 5% 470 5%	1/10 1/10 1/10	W W
R409 R410 R414 R415 R416	1-216-093-00 1-216-099-00 1-247-837-00 1-247-841-00 1-216-295-00	METAL CHIP METAL CHIP CARBON CARBON METAL CHIP	68K 120K 1.8K 2.7K 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/6W 1/6W 1/10W		R821 R822 R823 R824 R825	1-216-057-00 1-216-063-00 1-216-077-00 1-216-073-00 1-216-097-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 5% 3.9K 5% 15K 5% 10K 5% 100K 5%	1/10 1/10 1/10	4 4 4
R417 R418 R419 R420 R421	1-215-477-00 1-249-435-11 1-249-433-11 1-215-473-00 1-216-001-00	CARBON CARBON CARBON CARBON METAL CHIP	220K 33K 22K 150K 10	5% 5% 5% 5%	1/6W 1/6W 1/6W 1/6W 1/10W		R826 R827 R828 R829 R901	1-216-063-00 1-216-074-00 1-216-049-00 1-216-041-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.9K 5% 11K 5% 1K 5% 470 5% 10K 5%	3 1/10 3 1/10 5 1/10	4 4 4
R422 R427 R430 R431 R432	1-216-101-00 1-216-059-00 1-216-053-00 1-216-025-00 1-216-095-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	150K 2.7K 1.5K 100 82K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R902 R904 R905 R906 R907	1-216-073-00 1-216-089-00 1-216-089-00 1-216-081-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 5% 47K 5% 47K 5% 22K 5% 10K 5%	1/100 1/100 1/100	i 1 1
R433 R435 R436 R437 R438	1-247-854-00 1-249-414-11 1-247-860-00 1-216-065-00 1-249-423-11	CARBON CARBON CARBON METAL CHIP CARBON	9.1K 560 16K 4.7K 3.3K	5% 5% 5% 5% 5%	1/6W 1/6W 1/6W 1/10W 1/6W		R908 R909 R951 R952	1-216-065-00 1-216-089-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 5% 47K 5% 10K 5% 10K 5%	1/10V 1/10V 1/10V	l
R439 R440 R445 R446 R447	1-249-423-11 1-247-844-00 1-249-427-11 1-216-025-00 1-247-869-00	CARBON CARBON CARBON METAL CHIP CARBON	3.3K 3.6K 6.8K 100 39K	5% 5% 5% 5%	1/6W 1/6W 1/6W 1/10W 1/6W			**************************************		, COMPLETE	(10501)	*****
R449 R450 R451 R460 R462	1-216-059-00 1-249-425-11 1-249-423-11 1-215-418-00 1-247-858-00	METAL CHIP CARBON CARBON CARBON CARBON	2.7K 4.7K 3.3K 750 13K	5% 5% 5% 5% 5%	1/10W 1/6W 1/6W 1/6W 1/6W		C501 C502 C503 C504 C505	1-163-021-00 1-163-021-00 1-163-137-00 1-124-465-00 1-163-145-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP ELECT CERAMIC CHIP	0.01MF 680PF 0.47MF	10% 20% 10%	50V 50V 50V 50V 50V
R463 R470 R501 R502 R503	1-247-861-00 1-216-065-00 1-216-079-00 1-216-067-00 1-216-063-00		18K 4.7K 18K 5.6K 3.9K	5% 5% 5% 5% 5%	1/6W 1/10W 1/10W 1/10W 1/10W		C506 C507 C508 C509 C510	1-163-016-00 1-163-125-00 1-163-013-00 1-124-123-00 1-163-036-00		220PF 0.0022MF 100MF	10% 5% 10% 20%	50V 50V 50V 6.3V 50V
R505 R506 R562 R563 R564	1-216-063-00 1-216-049-00 1-216-069-00 1-216-067-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	3.9K 1K 6.8K 5.6K 4.7K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		C511 C512 C513 C514 C515	1-163-021-00 1-123-612-00 1-123-306-00 1-123-369-00 1-163-133-00		2.2MF 47MF 4.7MF	20% 20% 20% 5%	50V 50V 6.3V 25V 50V
R565 R566 R570	1-216-057-00 1-216-073-00 1-216-047-00	METAL CHIP	2.2K 10K 820	5% 5% 5%	1/10W 1/10W 1/10W		C516 C517 C518	1-123-661-00 1-163-088-00 1-163-017-00	ELECT CERAMIC CHIP CERAMIC CHIP		20% 0.25F 10%	6.3V 50V 50V

AF-20 AD-12

Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C519 1-163-125-00 C520 1-163-079-00 C521 1-163-020-00 C522 1-163-137-00 C523 1-124-255-00	CERAMIC CHIP 0.039MF CERAMIC CHIP 0.0082MF CERAMIC CHIP 680PF	5% 10% 10% 10% 20%	50V 25V 50V 50V 50V	R517 R518 R519 R520 R521	1-216-073-00 1-216-087-00 1-216-085-00 1-216-121-00 1-216-079-00	METAL CHIP 39K 5% METAL CHIP 33K 5% METAL CHIP 1M 5%	1/10W 1/10W 1/10W	
C524 1-124-462-00 C525 1-123-617-00 C526 1-124-638-11 C527 1-123-661-00 C528 1-123-611-00	ELECT 10MF ELECT 22MF ELECT 100MF	20% 20% 20% 20% 20%	16V 16V 6.3V 6.3V 50V	R522 R523 R524 R525 R526	1-216-097-00 1-216-089-00 1-216-083-00 1-216-079-00 1-216-079-00	METAL CHIP 47K 5% METAL CHIP 27K 5% METAL CHIP 18K 5%	1/10W 1/10W 1/10W	
C529 1-123-380-00 C530 1-163-021-00 C531 1-123-661-00 C532 1-123-380-00 C533 1-163-015-00	CERAMIC CHIP 0.01MF ELECT 100MF ELECT 1MF	20% 20% 20% 10%	50V 50V 6.3V 50V 50V	R527 R528 R530	1-216-057-00 1-216-059-00 1-216-049-00	METAL CHIP 2.7K 5%	1/10W	
		cα		DVEOT				
C535 1-163-013-00 C536 1-163-021-00	CERAMIC CHIP 0.0022MF CERAMIC CHIP 0.01MF	5% 10%	50V 50V 50V			RES, ADJ, CARBON 22K RES, ADJ, CARBON 10K		
C539 1-163-088-00	CERAMIC CHIP 5PF	0.25PF	507	*****	******	********	*****	*****
	NNECTOR				*A-7068-022-A	AD-12 BOARD, COMPLETE		
CN501 *1-564-318-00 CN502 *1-564-318-00	PIN, BOARD TO BOARD 10P PIN, BOARD TO BOARD 10P				CAP	ASITOR		
<u>IC</u>				C701	1-123-618-00		20%	6.3V
IC501 8-752-013-71	IC CX20137A			C703 C705 C707	1-163-117-00 1-123-618-00 1-123-617-00		5% 20% 20%	50V 6.3V 16V
<u>co</u>	<u>IL</u>			C709	1-124-224-00		20%	6.3V
	MICRO INDUCTOR 220UH			C710 C713	1-163-021-00 1-123-661-00	CERAMIC CHIP 0.01MF ELECT 100MF	20%	50V 6.3V
TR	ANSISTOR			C715 C716	1-123-661-00 1-123-617-00		20% 20%	6.3V 16V
Q502 8-729-109-42	TRANSISTOR DTC144EK TRANSISTOR 25K94-X2			C717	1-123-661-00	ELECT 100MF	20%	6.37
	TRANSISTOR DTC124EK SISTOR			C718 C719 C720	1-102-978-00 1-163-021-00 1-163-021-00	CERAMIC 220PF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.01MF	5%	50V 50V 50V
R501 1-216-065-00		1/10W		C721	1-124-224-00	ELECT 47MF	20%	6.3V
R502 1-216-065-00	METAL CHIP 4.7K 5%	1/10W		C722	1-163-021-00	CERAMIC CHIP 0.01MF		50 v
R503 1-216-065-00 R504 1-216-121-00		1/10W 1/10W		C751 C753	1-123-618-00 1-163-117-00	ELECT 22MF CERAMIC CHIP 100PF		6.3V 50V
R505 1-216-107-00	METAL CHIP 270K 5%	1/10W		C755 C757	1-123-618-00 1-123-617-00			6.3V 16V
R506 1-249-416-11 R507 1-249-416-11	CARBON 820 5%	1/6W 1/6W				NECTOR	20%	101
R508 1-216-097-00 R509 1-216-075-00 R510 1-216-063-00	METAL CHIP 12K 5%	1/10W 1/10W 1/10W		CN701	1-566-139-11	CONNECTOR, BOARD TO BOA	ARD 15P	
					<u>IC</u>			
R511 1-216-057-00 R512 1-216-045-00	METAL CHIP 680 5%	1/10W 1/10W			8-752-322-57			
R513 1-216-059-00 R514 1-216-061-00		1/10W 1/10W		IC702	8-759-914-44	IC TL431CLPB		
R515 1-216-061-00		1/10W			<u>C01</u>	<u>L</u>		
R516 1-216-059-00	METAL CHIP 2.7K 5%	1/10W		. L701	1-408-421-00	MICRO INDUCTOR 100UH		

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
R701 R703 R711 R713 R717 R718 R719 R720 R721	1-216-077-00 1-216-087-00 1-216-057-00 1-216-057-00 1-216-117-00 1-216-029-00 1-216-022-00 1-216-039-00 1-216-049-00	METAL CHIP	15K 59 39K 59 2.2K 59 680K 59 150 59 75 59 390 59 1K 59	% 1/10W % 1/10W % 1/10W % 1/10W % 1/10W % 1/10W % 1/10W % 1/10W		C655 C656 C657 C658 C659 C660 C661 C662 C663 C664	1-130-490-11 1-163-125-00 1-163-088-00 1-130-479-00 1-163-020-00 1-123-612-00 1-163-137-00 1-127-482-11 1-127-502-00 1-123-330-00	CERAMIC CHIP CERAMIC CHIP MYLAR CERAMIC CHIP ELECT CERAMIC CHIP ELECT(SOLID)	5PF 0.0047MF 0.0082MF 2.2MF 680PF 10MF	5% 10% 0.25PF 5% 10% 20% 20% 20%	50V 50V 50V 50V 50V 50V 6.3V 25V
R722 R723 R724 R751 R753 R761	1-216-653-11 1-216-661-11 1-215-485-00 1-216-077-00 1-216-087-00 1-216-057-00	METAL CHIP METAL CHIP METAL METAL CHIP METAL CHIP METAL CHIP		6 1/10W 6 1/10W		IC601	1C 8-752-009-90 <u>RES</u> 1-216-025-00	1STOR	100 5%	1/10W	
R763	1-216-057-00		2.2K 5			R601 R602 R603 R604	1-216-073-00 1-216-073-00 1-216-009-00 1-216-059-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	10K 5% 10K 5% 22 5% 2.7K 5%	1/10W 1/10W 1/10W 1/10W	
RV703 RV705 RV751	1-228-995-00 1-228-991-00 1-228-999-00 1-228-995-00 1-228-991-00	RES, ADJ, CA RES, ADJ, CA RES, ADJ, CA RES, ADJ, CA RES, ADJ, CA	RBON 2.2K RBON 470K RBON 22K			R605 R606 R607 R608 R609	1-216-057-00 1-216-045-00 1-216-083-00 1-216-063-00 1-216-061-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 5% 680 5% 27K 5% 3.9K 5% 3.3K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
*****	******	*****	******	*****	******	R610 R611	1-216-059-00 1-216-061-00	METAL CHIP METAL CHIP	2.7K 5% 3.3K 5%	1/10W 1/10W	
•	*A-7068-025-A	NR-6 BAORD,				R612 R613	1-216-065-00 1-216-072-00	METAL CHIP METAL CHIP	4.7K 5% 9.1K 5%	1/10W 1/10W	
	CAP	ACITOR				R614 R617	1-216-073-00 1-216-081-00	METAL CHIP	10K 5% 22K 5%	1/10W	
C601 C602 C603 C604 C605		ELECT ELECT ELECT ELECT MYLAR	100MF 47MF 100MF 100MF 0.039MF	20% 20% 20% 20% 5%	6.3V 10V 6.3V 6.3V 50V	R650 R651 R652 R653	1-216-025-00 1-216-073-00 1-216-073-00 1-216-009-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	100 5% 10K 5% 10K 5% 22 5%	1/10W 1/10W 1/10W 1/10W	
C606 C607 C608 C609 C610	1-163-125-00 1-163-088-00 1-130-479-00 1-163-020-00 1-123-612-00	CERAMIC CHIP CERAMIC CHIP MYLAR CERAMIC CHIP ELECT	5PF 0.0047MF	10% 0.25PF 5% 10% 20%	50V 50V 50V 50V 50V	R654 R655 R656 R657 R658	1-216-059-00 1-216-057-00 1-216-045-00 1-216-083-00 1-216-063-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.7K 5% 2.2K 5% 680 5% 27K 5% 3.9K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C611 C612 C613 C614 C615	1-163-137-00 1-127-482-11 1-127-502-00 1-123-330-00 1-163-141-00	ELECT(SOLID) ELECT	10MF 0.22MF 22MF	10% 20% 20% 20% 10%	50V 6.3V 25V 10V 50V	R659 R660 R661 R662 R667	1-216-061-00 1-216-059-00 1-216-061-00 1-216-065-00 1-216-081-00	METAL CHIP METAL CHIP	3.3K 5% 2.7K 5% 3.3K 5% 4.7K 5% 22K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C616 C617 C618 C651 C652	1-123-661-00 1-163-141-00 1-123-661-00 1-123-661-00 1-123-306-00	CERAMIC CHIP ELECT ELECT	100MF 0.001MF 100MF 100MF 47MF	20% 10% 20% 20% 20%	6.3V 50V 6.3V 6.3V		<u>PIN</u> *1-566-099-11 *******	•		*****	*****
C653 C654	1-123-661-00 1-123-661-00		100MF 100MF	20% 20%	6.3V 6.3V						

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
*,	A-7068-032-A	MK-2 BOARD,					*3-703-353-07	SUPPORT, PC	BOARD		
	CAP	ACITOR					CAP	ACITOR			
C808 C809 C810	1-130-487-00 1-130-487-00 1-130-467-00 1-130-471-00 1-130-487-00	MYLAR MYLAR MYLAR FILM	0.022MF 0.022MF 470PF 0.001MF 0.022MF	5% 5% 5% 5%	50V 50V 50V 50V 50V	C003 C004 C005 C007 C008	1-124-468-11 1-163-117-00 1-123-619-00 1-163-093-00 1-124-907-00		4.7MF	20% 5% 20% 5% 20%	6.3V 50V 50V 50V 50V
C828 C829 C830 C843	1-130-487-00 1-130-467-00 1-130-471-00	MYLAR MYLAR FILM ELECT	0.022MF 470PF 0.001MF 47MF 0.022MF	5% 5% 5% 20%	50V 50V 50V 10V 50V	C009 C010 C011 C012 C014	1-163-075-00 1-163-109-00 1-163-118-00 1-163-119-00 1-163-117-00		47PF 110PF 120PF	5% 5% 5% 5%	50V 50V 50V 50V 50V
C852	1-102-973-00 <u>CON</u>	CERAMIC NECTOR	100PF	5%	50V	C015 C016 C017 C026	1-163-129-00 1-124-247-00 1-163-075-00 1-163-123-00	ELECT CERAMIC CHIP CERAMIC CHIP	10MF 0.047MF 180PF	5% 20% 5%	50V 25V 50V 50V
CN802 *	1-564-318-00	PIN, BOARD T	O BOARD 10P			C027 C028 C029		CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	24PF	5% 5%	50V 50V 50V
	IC 8-759-913-62 8-759-913-62	IC IR3NO5				C030 C032 C033	1-124-907-00 1-163-103-00 1-163-115-00	ELECT CERAMIC CHIP CERAMIC CHIP		20% 5% 5%	50V 50V 50V
		IC TC40103BP				C034 C035 C036	1-163-103-00 1-163-077-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	27PF 0.1MF	5% 5%	50V 50V 50V
L801	1-408-421-00	MICRO INDUCT	OR 100UH			C037 C038		CERAMIC CHIP CERAMIC CHIP		5%	50V 50V
Q851		NSISTOR TRANSISTOR 2	SC2785			C039 C040 C041		CERAMIC CHIP CERAMIC CHIP	0.001MF 0.047MF	10%	50V 50V 50V
	RES	ISTOR				C042 C043	1-124-907-00 1-124-247-00	ELECT ELECT	10MF 10MF	20% 20%	50V 25V
R811 R812 R830 R831 R851	1-249-423-11 1-249-428-11 1-249-436-11 1-249-423-11 1-249-428-11 1-249-435-11 1-249-435-11	CARBON CARBON CARBON CARBON CARBON	3.3K 5% 8.2K 5% 39K 5% 3.3K 5% 8.2K 5% 33K 5% 33K 5%	1/6W 1/6W 1/6W 1/6W 1/6W 1/6W		C044 C045 C046 C047 C048	1-163-075-00 1-124-903-00 1-124-927-11 1-124-442-00	ELECT	1MF 4.7MF 330MF	20% 20% 20% 20%	50V 50V 50V 50V 6.3V
R853	1-249-441-11 <u>VAR</u>	CARBON HABLE RESISTO	100K 5% <u>R</u>	1/6W		C050 C051 C053 C054	1-124-927-11 1-124-908-11 1-163-119-00 1-124-907-00	ELECT CERAMIC CHIP	4.7MF 22MF 120PF 10MF	20% 20% 5% 20%	50V 25V 50V 50V
RV821	1-228-990-00	RES, ADJ, ME RES, ADJ, ME	TAL GLAZE 1	(عدد خاند خان چاپ	C055 C056	1-163-113-00 1-163-141-00	CERAMIC CHIP CERAMIC CHIP	68PF 0.001MF	5% 10%	50V 50V
		VI-20 BOARD	, COMPLETE	(WG MODE	L)	C057 C058 C060	1-163-075-00 1-163-092-00	CERAMIC CHIP CERAMIC CHIP	0.047MF 9PF	5% 0.25PF	
*	A-7060-792 - A	**************************************	*****	******* ar d(ICO 1	.*** LO),	C061 C062 C063 C064 C065	1-163-075-00		0.047MF	20% 20%	50V 50V 50V 50V 50V

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C066 C100 C101 C102 C104	1-163-129-00 1-163-101-00 1-163-129-00 1-163-093-00 1-163-105-00	CERAMIC CHIP 330PF CERAMIC CHIP 22PF CERAMIC CHIP 330PF CERAMIC CHIP 10PF CERAMIC CHIP 33PF	5% 5% 5% 5% 5%	50V 50V 50V 50V 50V	C244 C250 C251 C252 C253	1-163-075-00 1-163-101-00 1-163-137-00 1-124-927-11 1-163-075-00	CERAMIC CHIP 0.047MF CERAMIC CHIP 22PF CERAMIC CHIP 680PF ELECT 4.7MF CERAMIC CHIP 0.047MF	5% 5% 20%	50V 50V 50V 50V 50V
C105 C106 C107 C110 C111	1-163-129-00 1-163-111-00 1-124-908-11 1-163-107-00 1-163-107-00	CERAMIC CHIP 330PF CERAMIC CHIP 56PF ELECT 22MF CERAMIC CHIP 39PF CERAMIC CHIP 39PF	5% 5% 20% 5% 5%	50V 50V 25V 50V 50V	C254 C255 C260 C261 C262	1-163-075-00 1-124-907-00 1-163-075-00 1-163-141-00 1-163-141-00	CERAMIC CHIP 0.047MF ELECT 10MF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.001MF	20% 10% 10%	50V 50V 50V 50V 50V
C112 C113 C114 C115 C116	1-163-111-00 1-163-097-00 1-163-075-00 1-163-092-00 1-124-908-11	CERAMIC CHIP 56PF CERAMIC CHIP 15PF CERAMIC CHIP 0.047MF CERAMIC CHIP 9PF ELECT 22MF	5% 5% 0.25PF 20%	50V 50V 50V 50V 25V	C263 C264 C265 C266 C267	1-163-117-00 1-163-109-00 1-124-927-11 1-163-075-00 1-163-109-00	CERAMIC CHIP 100PF CERAMIC CHIP 47PF ELECT 4.7MF CERAMIC CHIP 0.047MF CERAMIC CHIP 47PF	5% 5% 20% 5%	50V 50V 50V 50V 50V
C117 C201 C202 C203 C204	1-163-127-00 1-163-141-00 1-163-075-00 1-163-021-00 1-163-101-00	CERAMIC CHIP 270PF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.01MF CERAMIC CHIP 22PF	5% 10% 5%	50V 50V 50V 50V 50V	C268 C301 C302 C303 C304	1-124-462-00 1-163-075-00 1-163-109-00 1-163-017-00 1-163-113-00	ELECT 10MF CERAMIC CHIP 0.047MF CERAMIC CHIP 47PF CERAMIC CHIP 0.0047MF CERAMIC CHIP 68PF	20% 5% 10% 5%	16V 50V 50V 50V 50V
C205 C206 C207 C208 C209	1-163-111-00 1-124-257-00 1-163-121-00 1-123-619-00 1-163-111-00	CERAMIC CHIP 56PF ELECT 2.2MF CERAMIC CHIP 150PF ELECT 4.7MF CERAMIC CHIP 56PF	5% 20% 5% 20% 5%	50V 35V 50V 50V 50V	C305 C306 C307 C308 C309	1-163-129-00 1-163-129-00 1-163-021-00 1-163-141-00 1-163-021-00	CERAMIC CHIP 330PF CERAMIC CHIP 330PF CERAMIC CHIP 0.01MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.01MF	5% 5% 10%	50V 50V 50V 50V 50V
C210 C211 C212 C213 C215	1-163-133-00 1-163-075-00 1-124-904-00 1-124-907-00 1-124-927-11	CERAMIC CHIP 470PF CERAMIC CHIP 0.047MF ELECT 2.2MF ELECT 10MF ELECT 4.7MF	5% 20% 20% 20%	50V 50V 50V 50V 50V	C310 C311 C312 C313 C314	1-163-118-00 1-124-907-00 1-163-075-00 1-163-141-00 1-163-141-00	CERAMIC CHIP 110PF ELECT 10MF CERAMIC CHIP 0.047MF CERAMIC CHIP 0.001MF CERAMIC CHIP 0.001MF	5% 20% 5% 10%	50V 50V 50V 50V 50V
C216 C217 C218 C219 C220	1-163-101-00 1-163-113-00 1-163-121-00 1-163-101-00 1-124-892-11	CERAMIC CHIP 22PF CERAMIC CHIP 68PF CERAMIC CHIP 150PF CERAMIC CHIP 22PF ELECT 47MF	5% 5% 5% 5% 20%	50V 50V 50V 50V 10V	C315 C316 C317 C318 C319	1-124-904-00 1-163-019-00 1-124-905-11 1-163-141-00 1-163-093-00	CERAMIC CHIP 0.0068MF ELECT 3.3MF CERAMIC CHIP 0.001MF CERAMIC CHIP 10PF	20% 10% 20% 10% 5%	50V 50V 50V 50V 50V
C221 C222 C223 C224 C225	1-163-115-00 1-163-103-00 1-163-115-00 1-163-101-00 1-163-021-00	CERAMIC CHIP 82PF CERAMIC CHIP 27PF CERAMIC CHIP 82PF CERAMIC CHIP 22PF CERAMIC CHIP 0.01MF	5% 5% 5% 5%	50V 50V 50V 50V 50V	C320 C321 C322 C323 C324	1-163-021-00 1-163-145-00 1-163-141-00 1-124-907-00 1-163-077-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.0015MF CERAMIC CHIP 0.001MF ELECT 10MF CERAMIC CHIP 0.1MF	10% 10% 20%	50V 50V 50V 50V 50V
C226 C227 C228 C229 C230	1-163-021-00 1-163-101-00 1-163-111-00 1-124-462-00 1-163-141-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 22PF CERAMIC CHIP 56PF ELECT 10MF CERAMIC CHIP 0.001MF	5% 5% 20% 10%	50V 50V 50V 16V 50V	C325 C326 C327 C328 C329		CERAMIC CHIP 33PF CERAMIC CHIP 100PF CERAMIC CHIP 47PF CERAMIC CHIP 68PF CERAMIC CHIP 0.001MF	5% 5% 5% 5% 10%	50V 50V 50V 50V
C236 C237 C238 C239 C240	1-124-468-11	CERAMIC CHIP 0.047MF ELECT 100MF CERAMIC CHIP 0.047MF	20% 20% 10%	16V 50V 6.3V 50V	C330 C331 C332 C414 C415	1-163-111-00		5% 5% 10% 50V (1	50V 50V 50V WG MODEL) 50V
C241 C242 C243	1-163-075-00 1-124-908-11 1-124-908-11		20% 20%	50V 25V 25V	C417 C418 C419	1-130-473-00 1-124-908-11 1-124-927-11	ELECT 22MF 20%		50V WG MODEL) AEP MODEL)

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Ref.No Part No.	Description	Remark	Ref.No	Part No.	Description		Remark
C425 1-124-907-00 C426 1-163-021-00 C427 1-163-063-00	CERAMIC CHIP 0.01MF ELECT 10MF 20% CERAMIC CHIP 0.01MF CERAMIC CHIP 0.022MF CERAMIC CHIP 0.047MF	50V 50V 50V 50V 50V	D413 D414 D415 D416 D417	8-719-106-22 8-719-106-22 8-719-106-22	DIODE RD7.5M- DIODE RD7.5M- DIODE RD7.5M- DIODE RD7.5M- DIODE RD7.5M-	B1 B1 B1	
C429 1-163-063-00 C430 1-163-021-00 C433 1-124-907-00 C434 1-124-907-00 C437 1-124-907-00	ELECT 10MF 20%	50V 50V 50V 50V 50V	D418 D419	8-719-106-22	DIODE RD7.5M- DIODE RD7.5M- AY LINE	B1 B1	
C438 1-124-908-11 C440 1-124-908-11	ELECT 22MF 20% ELECT 22MF 20% CERAMIC CHIP 0.1MF ELECT 47MF 20%	25V 25V 50V 10V 6.3V	DL002	1-415-282-00 1-415-386-21 <u>IC</u> 8-752-013-00	DELAY LINE, 1	H (13.3MHZ)	
C451 1-124-443-00 C452 1-163-021-00	ELECT 100MF 20% CERAMIC CHIP 0.01MF CERAMIC CHIP 82PF 5%	10V 50V 50V 25V	IC002 IC003 IC004 IC005	8-752-013-10 8-759-913-64 8-759-927-52 8-759-202-68	IC CX20131 IC CX23064 IC BA7036LS IC CX20147		
CN003 *1-564-007-00	NNECTOR PIN CONNECTOR 8P		IC010 IC011	8-752-006-10 *A-7068-030-A 1-807-844-11 1-807-846-11	IC CX20061 (WCCH-44 BOARD, IC BS6324	G MODEL) COMPLETE	
CN007 *1-564-006-11 CN009 *1-564-027-00	PIN, CONNECTOR 7P PIN, CONNECTOR 2P (AEP MODEL) PIN, CONNECTOR 3P (WG MODEL)			JUM	PER RESISTOR		
CNO11 *1-564-001-11 CNO12 *1-564-003-00	PIN, CONNECTOR 3P PIN, CONNECTOR 2P (WG MODEL) PIN, CONNECTOR 4P (WG MODEL) PIN, CONNECTOR 4P (WG MODEL)		JR002 JR003 JR004	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W 1/10W
JAC	<u>CK</u>		JR006	1-216-295-00	METAL CHIP	0 5%	1/10W
CNJ001 1-561-534-82 CNJ002 1-507-945-21 CNJ003 1-507-945-21	JACK, PIN 1P		JR008 JR009	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W
DIO	DDE		JR011	1-216-295-00		0 5%	1/10W
D005 8-719-101-23 D100 8-719-100-03 D202 8-719-100-05	DIODE 1S2835 DIODE 1SS123-T1 DIODE 1S2835 (AEP MODEL) DIODE 1S2837-T1 DIODE 1SS123		JR013 JR014 JR015	1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W
D205 8-719-100-03 D206 8-719-101-23 D301 8-719-100-05 D302 8-719-101-23	DIODE 152835 DIODE 155123 DIODE 152837 DIODE 155123		JR018 JR019 JR020	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D304 8-719-101-23 D305 8-719-100-03 D402 8-719-100-05 D403 8-719-106-08	DIODE RD6.2M-B2		JR023 JR024 JR025	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W 1/10W
D411 8-719-106-22	DIODE RD7.5M-B1 DIODE RD7.5M-B1 DIODE RD7.5M-B1		JR028 JR029	1-216-295-00 1-216-295-00	METAL CHIP	0 5% 0 5% 0 5% 0 5%	1/10W 1/10W 1/10W 1/10W

Ref.No	Part No.	Description			<u>!</u>	Remark	Ref.No	Part No.	Description				Remark
JR031 JR032 JR033 JR034 JR035	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	10W 10W 10W 10W 10W		JR084 JR085 JR086 JR087 JR088	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
JR036 JR037 JR038 JR039 JR040	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	10W 10W 10W 10W 10W		JR089 JR090 JR091 JR092 JR093	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
JR041 JR042 JR043 JR044 JR045	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	'10W '10W '10W '10W '10W		JR094 JR095 JR096 JR097 JR098	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
JR046 JR047 JR048 JR049 JR050	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	/10W /10W /10W /10W /10W		JR099 JR100 JR101 JR102 JR103	1-216-295-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/10W 1/8W 1/8W 1/8W 1/8W	
JR051 JR052 JR053 JR054 JR055	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	'10W '10W '10W '10W '10W		JR104 JR105 JR106 JR107 JR108	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
JR056 JR057 JR058 JR059 JR060	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	10W 10W 10W 10W 10W		JR109 JR110 JR111 JR112 JR113	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
JR061 JR062 JR063 JR064 JR065	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	'10W '10W '10W '10W '10W		JR114 JR115 JR116 JR117 JR118	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
JR066 JR067 JR068 JR069 JR070	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	'10W '10W '10W '10W '10W		JR119 JR120 JR121 JR122 JR123	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
JR071 JR072 JR073 JR074 JR075	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	10W 10W 10W 10W 10W		JR127	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
JR076 JR077 JR078 JR079 JR080	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 1/ 5% 1/ 5% 1/	10W 10W 10W 10W 10W		JR130	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
JR081 JR082 JR083	1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	0	5% 1/	10W 10W 10W		JR135	1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP	0 0 0	5% 5% 5%	1/8W 1/8W 1/8W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description		Remark
JR137 JR138 JR139 JR140	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		L106 L107 L201 L202 L204	1-408-414-00 1-408-422-00 1-408-397-00 1-408-397-00 1-408-419-00	MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR	: 120UH : 1UH : 1UH	
JR142 JR143 JR144 JR145 JR146	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		L205 L206 L207 L208 L209	1-408-419-00 1-408-417-00 1-408-420-00 1-408-417-00 1-408-413-00	MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR	: 47UH : 82UH : 47UH	
JR147 JR148 JR149 JR150 JR151	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		L212 L213 L220 L221 L301	1-408-413-00 1-408-408-00 1-408-411-00 1-408-427-00 1-408-421-00	MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR	R 8.2UH R 15UH R 330UH	
JR152 JR153 JR154 JR155 JR156	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		L302 L303 L304 L401 L402	1-408-413-00 1-408-425-00 1-408-422-00 1-410-118-11 1-408-424-00	MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR	R 220UH R 120UH R 0.82MMH	
JR157 JR158 JR159 JR160 JR161	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W		L405 L411 L412	1-408-421-00	MICRO INDUCTOR MICRO INDUCTOR MICRO INDUCTOR RIABIE COIL	R 22UH (WG MODEL)	
JR162 JR163 JR164 JR165 JR166	1-216-296-00	METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W			<u>IC</u>	COIL (VARIABLE <u>LINK</u> LINK, IC (ICP-		
JR167			0	5%	1/8W			TRA	ANSISTOR		
JR168 JR169 JR170 JR171 JR172	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	0 0 0 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W		Q002 Q004 Q006 Q009 Q010	8-729-901-06 8-729-100-67 8-729-100-67	TRANSISTOR DT/ TRANSISTOR DTO TRANSISTOR 250 TRANSISTOR 250 TRANSISTOR 250	C144EK C1623-L7 C1623-L7	
JR173 JR174	1-216-296-00 1-216-296-00	METAL CHIP	0	5% 5%	1/8W 1/8W		0011 0013 0014	8-729-901-00	TRANSISTOR 25/ TRANSISTOR DTO TRANSISTOR 25/	C124EK	
L002	1-408-416-00	—-) MICRO INDUC					0015 0018		TRANSISTOR DTO TRANSISTOR 25		
L003 L004 L005 L009			TOR 330	OUH OUH			Q019 Q020 Q023 Q024	8-729-100-67	TRANSISTOR 2S. TRANSISTOR 2S. TRANSISTOR 2S. TRANSISTOR 2S.	C1623-L7 C1623-L7	
L010 L011 L012 L013 L100	1-408-420-00 1-408-418-00 1-408-423-00 1-408-421-00 1-408-409-00) MICRO INDUC	TOR 56 TOR 15 TOR 10	UH OUH OUH			Q025 Q026 Q027 Q100	8-729-100-67 8-729-100-67	TRANSISTOR DTO TRANSISTOR DTO TRANSISTOR 2SO TRANSISTOR 2SO	C144EK A144EK C1623-L7 C1623-L7	
L101 L102 L103 L105	1-408-428-00 1-408-409-00 1-408-423-00	MICRO INDUC	TOR 10 TOR 15	UH 0UH			Q101 Q102 Q103	8-729-901-06	TRANSISTOR DT	C144EK	

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description			Re	emark
Q104 Q106 Q107 Q110 Q113	8-729-100-67 8-729-901-06 8-729-100-67 8-729-312-22 8-729-100-67	TRANSISTOR 2SC1623-L7 TRANSISTOR DTA144EK TRANSISTOR 2SC1623-L7 TRANSISTOR 2SA1122C TRANSISTOR 2SC1623-L7		R023 R024 R025 R026 R027	1-216-043-00 1-216-049-00 1-216-057-00 1-216-059-00 1-216-057-00	METAL CHIP	560 1K 2.2K 2.7K 2.2K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q201 Q202 Q203 Q204 Q205	8-729-901-06 8-729-901-00 8-729-901-00	TRANSISTOR DTC144EK TRANSISTOR DTC124EK TRANSISTOR DTC124EK TRANSISTOR DTC124EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR DTC144EK TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7 TRANSISTOR DTC144EK		R028 R029 R030 R044 R045	1-216-049-00 1-216-073-00 1-216-049-00 1-216-065-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 10K 1K 4.7K 4.7K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q206 Q207 Q208 Q209 Q211	8-729-100-67 8-729-100-67 8-729-100-67 8-729-901-06	TRANSISTOR DTC144EK TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7 TRANSISTOR DTC144EK		R046 R047 R048 R049 R050	1-216-039-00 1-216-101-00 1-216-099-00 1-216-113-00 1-216-075-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	390 150K 120K 470K 12K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q215 Q216 Q217 Q218 Q219	8-729-312-22 8-729-100-67 8-729-100-67 8-729-312-22 8-729-901-04	TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7 TRANSISTOR 2SA1122 TRANSISTOR DTA114EK		R051 R052 R053 R054 R055	1-216-081-00 1-216-077-00 1-216-063-00 1-216-033-00 1-216-109-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 15K 3.9K 220 330K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q220 Q221 Q222 Q301 Q302	8-729-100-67 8-729-312-22 8-729-100-67 8-729-100-67	TRANSISTOR 2SC1623-L7 TRANSISTOR 2SA1122 TRANSISTOR 2SC1623-L7		R056 R057 R058 R059 R060	1-216-049-00 1-216-081-00 1-216-081-00 1-216-089-00 1-216-091-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 22K 22K 47K 56K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q304 Q403 Q404 Q405 Q406	8-729-901-06 8-729-901-06 8-729-901-06	TRANSISTOR DTC124EK TRANSISTOR DTA144EK (WG MODEL)		R061 R062 R063 R064 R066	1-216-059-00 1-216-083-00 1-216-093-00 1-249-417-11 1-216-043-00	METAL CHIP METAL CHIP METAL CHIP CARBON METAL CHIP	2.7K 27K 68K 1K 560	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/6W 1/10W	
Q407 Q408 Q409 Q410 Q413	8-729-177-33 8-729-901-06 8-729-901-06 8-729-100-67	TRANSISTOR 2SC1623-L7 (WG MODEL TRANSISTOR 2SD773-4 TRANSISTOR DTC144EK TRANSISTOR DTA144EK TRANSISTOR 2SC1623-L7		R067 R068 R069 R070 R071	1-216-037-00 1-216-045-00 1-216-035-00 1-216-047-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	330 680 270 820 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
Q420 Q421 Q423	8-729-312-22 8-729-178-54 8-729-177-33	TRANSISTOR 2SA1122 TRANSISTOR 2SC2785 TRANSISTOR 2SD773-4		R072 R073 R074 R075 R076	1-216-081-00 1-216-065-00 1-216-065-00 1-216-047-00 1-216-089-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 4.7K 4.7K 820 47K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R008 R009 R010 R012 R013	1-216-041-00 1-216-037-00 1-216-041-00 1-216-051-00 1-216-075-00	METAL CHIP 470 5% 1/10v METAL CHIP 330 5% 1/10v METAL CHIP 470 5% 1/10v METAL CHIP 1.2K 5% 1/10v	! ! !	R078 R079 R080	1-216-081-00 1-216-041-00 1-216-051-00 1-216-081-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 470 1.2K 22K 22K	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R014 R016 R017 R018 R019	1-216-081-00 1-216-057-00 1-216-055-00 1-216-059-00 1-216-057-00	METAL CHIP 22K 5% 1/10V METAL CHIP 2.2K 5% 1/10V METAL CHIP 1.8K 5% 1/10V METAL CHIP 2.7K 5% 1/10V METAL CHIP 2.2K 5% 1/10V	l ! 	R083 R084 R087 R100 R101	1-216-081-00 1-216-081-00 1-216-025-00 1-216-049-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 22K 100 1K 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R020 R021 R022	1-216-039-00 1-216-043-00 1-216-073-00	METAL CHIP 560 5% 1/10V	1	R102 R103 R109	1-216-039-00 1-216-057-00 1-216-091-00	METAL CHIP METAL CHIP METAL CHIP	390 2.2K 56K	5% 5% 5%	1/1(W 1/1(W 1/1(W	

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Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R110 R111 R112 R113 R114	1-216-065-00 1-216-059-00 1-216-055-00 1-216-031-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	4.7K 2.7K 1.8K 180 470	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R224 R225 R226 R227 R228	1-216-081-00 1-216-065-00 1-216-057-00 1-216-045-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 4.7K 2.2K 680 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R115 R116 R117 R118 R119	1-216-053-00 1-216-041-00 1-216-049-00 1-216-049-00 1-216-019-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1.5K 470 1K 1K 56	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R229 R230 R231 R232 R233	1-216-045-00 1-216-051-00 1-216-045-00 1-216-053-00 1-216-045-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	680 1.2K 680 1.5K 680	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R120 R121 R128 R129 R131	1-216-081-00 1-216-081-00 1-216-295-00 1-216-049-00 1-216-057-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 22K 0 1K 2.2K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R234 R236 R237 R238 R239	1-216-049-00 1-216-049-00 1-216-041-00 1-216-049-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 1K 470 1K 470	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R132 R133 R134 R136 R137	1-216-057-00 1-216-033-00 1-216-033-00 1-216-041-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 220 220 470 470	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R241 R246 R247 R248 R249	1-216-035-00 1-216-079-00 1-216-075-00 1-216-051-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	270 18K 12K 1.2K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R138 R139 R140 R141 R142	1-216-041-00 1-216-051-00 1-216-041-00 1-216-081-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	470 1.2K 470 22K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R250 R251 R252 R253 R254	1-216-081-00 1-216-039-00 1-216-027-00 1-216-035-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 390 120 270 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R144 R145 R146 R148 R149	1-216-023-00 1-216-029-00 1-216-296-00 1-216-047-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	82 150 0 820 1K	5% 5% 5% 5% 5%	1/10W 1/10W 1/8W 1/10W 1/10W		R255 R256 R257 R258 R265	1-216-083-00 1-216-089-00 1-216-077-00 1-216-073-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	27K 47K 15K 10K 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R175 R201 R202 R203 R204	1-216-295-00 1-216-009-00 1-216-025-00 1-216-027-00 1-216-081-00	METAL CHIP METAL CHIP METAL CHIP	0 22 100 120 22K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R266 R267 R268 R269 R270	1-216-081-00 1-216-047-00 1-216-057-00 1-216-045-00 1-216-031-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	22K 820 2.2K 680 180	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R205 R206 R207 R208 R209	1-216-081-00 1-216-081-00 1-216-081-00 1-216-075-00 1-216-121-00	METAL CHIP METAL CHIP METAL CHIP	22K 22K 22K 12K 1M	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R271 R272 R273 R274 R275	1-216-049-00 1-216-079-00 1-216-075-00 1-216-035-00 1-216-017-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 18K 12K 270 47	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R210 R211 R212 R213 R214	1-216-117-00 1-216-087-00 1-216-073-00 1-216-025-00 1-216-039-00	METAL CHIP METAL CHIP METAL CHIP	680K 39K 10K 100 390	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R276 R277 R278 R279 R280	1-216-063-00 1-216-057-00 1-216-059-00 1-216-065-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP	3.9K 2.2K 2.7K 4.7K 4.7K	5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R215 R216 R217 R218 R219	1-216-057-00 1-216-085-00 1-216-081-00 1-216-049-00 1-216-051-00	METAL CHIP METAL CHIP METAL CHIP	2.2K 33K 22K 1K 1.2K	5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W		R281 R282 R285 R286 R287	1-216-044-00 1-216-033-00 1-216-081-00 1-216-073-00 1-216-035-00	METAL CHIP METAL CHIP METAL CHIP	620 220 22K 10K 270	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
R220 R221 R222	1-216-065-00 1-216-045-00 1-216-065-00	METAL CHIP	4.7K 680 4.7K	5%	1/10W 1/10W 1/10W		R288 R289 R290	1-216-053-00 1-216-025-00 1-216-083-00	METAL CHIP	1.5K 100 27K	5% 5% 5%	1/10W 1/10W 1/10W	

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
R291	1-216-081-00	METAL CHIP	22K 5%	1/10W	R414	1-216-045-00	METAL CHIP	680 5%	1/10W
R292	1-216-089-00	METAL CHIP	47K 5%	1/10W	R415	1-216-065-00	METAL CHIP	4.7K 5%	1/10W
R293	1-216-111-00	METAL CHIP	390K 5%	1/10W	R416	1-216-061-00	METAL CHIP	3.3K 5%	1/10W
R294	1-216-071-00	METAL CHIP	8.2K 5%	1/10W	R417	1-216-065-00	METAL CHIP	4.7K 5%	1/10W
R297	1-216-295-00	METAL CHIP	0 5%	1/10W	R425	1-216-049-00	METAL CHIP	1K 5%	1/10W
R298	1-216-073-00	METAL CHIP	10K 5%	1/10W	R427	1-216-047-00	METAL CHIP	820 5%	1/10W
R299	1-216-121-00	METAL CHIP	1M 5%	1/10W	R428	1-216-295-00	METAL CHIP	0 5%	1/10W
R301	1-216-049-00	METAL CHIP	1K 5%	1/10W	R429	1-216-041-00	METAL CHIP	470 5%	1/10W
R302	1-216-081-00	METAL CHIP	22K 5%	1/10W	R430	1-216-073-00	METAL CHIP	10K 5%	1/10W
R303	1-216-081-00	METAL CHIP	22K 5%	1/10W	R431	1-216-073-00	METAL CHIP	10K 5%	1/10W
R304 R305 R306 R307 R309	1-216-057-00 1-216-043-00 1-216-065-00 1-216-049-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 5% 560 5% 4.7K 5% 1K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	R432 R433 R434 R435 R436	1-216-029-00 1-216-049-00 1-216-081-00 1-216-081-00 1-216-049-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	150 5% 1K 5% 22K 5% 22K 5% 1K 5%	1/10W 1/10W 1/10W (WG MODEL) 1/10W (WG MODEL) 1/10W (WG MODEL)
R310	1-216-081-00	METAL CHIP	22K 5%	1/10W	R437	1-216-022-00	METAL CHIP	75 5%	1/10W
R311	1-216-081-00	METAL CHIP	22K 5%	1/10W	R440	1-216-081-00	METAL CHIP	22K 5%	1/10W
R312	1-216-059-00	METAL CHIP	2.7K 5%	1/10W	R441	1-216-069-00	METAL CHIP	6.8K 5%	1/10W
R313	1-216-049-00	METAL CHIP	1K 5%	1/10W	R442	1-216-089-00	METAL CHIP	47K 5%	1/10W
R317	1-216-049-00	METAL CHIP	1K 5%	1/10W	R443	1-216-033-00	METAL CHIP	220 5%	1/10W
R318	1-216-065-00	METAL CHIP	4.7K 5%	1/10W	R444	1-216-047-00	METAL CHIP	820 5%	1/10W (AEP MODEL)
R319	1-216-041-00	METAL CHIP	470 5%	1/10W	R444	1-216-048-00	METAL CHIP	910 5%	1/10W (WG MODEL)
R320	1-216-081-00	METAL CHIP	22K 5%	1/10W	R445	1-216-073-00	METAL CHIP	10K 5%	1/10W
R321	1-216-089-00	METAL CHIP	47K 5%	1/10W	R446	1-216-081-00	METAL CHIP	22K 5%	1/10W
R322	1-216-043-00	METAL CHIP	560 5%	1/10W	R447	1-216-081-00	METAL CHIP	22K 5%	1/10W
R323 R324 R325 R326 R327	1-216-093-00 1-216-089-00 1-216-059-00 1-216-077-00 1-216-095-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	68K 5% 47K 5% 2.7K 5% 15K 5% 82K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	R452 R454 R456 R457 R458	1-216-045-00 1-216-049-00 1-216-049-00 1-216-045-00 1-216-025-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP METAL CHIP	1K 5% 1K 5% 680 5%	1/10W (AEP MODEL) 1/10W 1/10W 1/10W 1/10W (WG MODEL)
R328	1-216-097-00	METAL CHIP	100K 5%	1/10W	R459	1-216-049-00	METAL CHIP	1K 5%	1/10W
R329	1-216-099-00	METAL CHIP	120K 5%	1/10W	R460	1-216-051-00	METAL CHIP	1.2K 5%	1/10W
R330	1-216-071-00	METAL CHIP	8.2K 5%	1/10W	R470	1-249-408-11	CARBON	180 5%	1/6W
R331	1-216-057-00	METAL CHIP	2.2K 5%	1/10W	R471	1-216-021-00	METAL CHIP	68 5%	1/10W
R332	1-216-053-00	METAL CHIP	1.5K 5%	1/10W	R472	1-216-030-00	METAL CHIP	160 5%	1/10W
R333	1-216-053-00	METAL CHIP	1.5K 5%	1/10W	R473	1-216-051-00	METAL CHIP	0 5%	1/10W
R334	1-216-053-00	METAL CHIP	1.5K 5%	1/10W	R474	1-216-049-00	METAL CHIP		1/10W
R335	1-216-053-00	METAL CHIP	1.5K 5%	1/10W	R480	1-216-295-00	METAL CHIP		1/10W (AEP MODEL)
R336	1-216-053-00	METAL CHIP	1.5K 5%	1/10W	R481	1-216-295-00	METAL CHIP		1/10W (AEP MODEL)
R337	1-216-065-00	METAL CHIP	4.7K 5%	1/10W	R482	1-216-295-00	METAL CHIP		1/10W (WG MODEL)
R338	1-216-089-00		47K 5%	1/10W	R482	1-216-015-00	METAL CHIP	39 5%	1/10W (AEP MODEL)
R339	1-216-063-00		3.9K 5%	1/10W	R483	1-216-296-00	METAL CHIP	0 5%	1/8W
R340	1-216-073-00		10K 5%	1/10W	R484	1-216-064-00	METAL CHIP	4.3K 5%	1/10W
R341	1-216-059-00		2.7K 5%	1/10W	R485	1-216-048-00	METAL CHIP	910 5%	1/10W
R342	1-216-121-00		1M 5%	1/10W	R486	1-216-035-00	METAL CHIP	270 5%	1/10W
R343 R344 R345 R346 R407	1-216-039-00 1-216-115-00 1-216-073-00 1-216-049-00 1-216-049-00	METAL CHIP	390 5% 560K 5% 10K 5% 1K 5% 1K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		1-216-296-00 <u>VAR</u> 1-228-989-00 1-228-989-00	METAL CHIP IABLE RESISTOR RES, ADJ, CAR RES, ADJ, CAR	- BON 470	1/8W
R408 R408 R413	1-216-022-00 1-216-057-00 1-216-045-00	METAL CHIP METAL CHIP METAL CHIP		1/10W (WG MODEL) 1/10W (AEP MODEL) 1/10W	RV005 RV006	1-228-994-00 1-228-994-00 1-228-994-00	RES, ADJ, CAR RES, ADJ, CAR RES, ADJ, CAR	BON 10K BON 10K	

VI-20 CH-44

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description			Remark
	1-228-994-00 1-228-994-00	RES, ADJ, CARBON 10K RES, ADJ, CARBON 10K			C028 C029	1-124-462-00 1-163-021-00	ELECT CERAMIC CHIP	10MF 0.01MF	20%	16V 50V
RV011	1-228-993-00 1-228-994-00	RES, ADJ, CARBON 4.7K RES, ADJ, CARBON 10K			C030 C031	1-163-088-00 1-163-021-00	CERAMIC CHIP CERAMIC CHIP	5PF 0.01MF	0.25PF	
	1-228-994-00 1-228-998-00	RES, ADJ, CARBON 10K RES, ADJ, CARBON 220K			C032		CERAMIC CHIP		5%	50V
		RES, ADJ, CARBON 47K			C033 C034 C035	1-163-097-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	15PF	0.25PF 5% 5%	50V 50V 50V
	TRANSFOR				C036 C037	1-163-129-00	CERAMIC CHIP CERAMIC CHIP	330PF	5% 5%	50V 50V
T001 T004 T005 T006 T007	1-235-437-11 1-409-396-11 1-409-397-11 1-235-632-11 1-235-633-11	REC´C TRAP TRAP BPF			C038 C039 C040	1-124-249-00 1-124-252-00 1-163-021-00		0.1MF 0.33MF 0.01MF	20% 20%	50V 50V 50V
	THE	RMISTOR				TRI	MMER			
TH001		THERMISTOR S-3K			CV001	1-141-227-00	CAP, CERAMIC	TRIMMER		
		STAL				<u>IC</u>				
X201	1-567-442-11	VIBRATOR, CRYSTAL				8-752-003-20 8-752-202-10				
*****	******	*******	*****	******		<u>C01</u>	<u>L</u>			
		CH-44 BOARD, COMPLETE ***********************************			L001 L002 L003 L004	1-407-172-XX 1-407-168-XX	MICRO INDUCTO MICRO INDUCTO MICRO INDUCTO MICRO INDUCTO	OR 180UH OR 82UH		
C001	1-163-093-00	CERAMIC CHIP 10PF	5%	50 v			NSISTOR			
C002 C003 C004		CERAMIC CHIP 0.001MF CERAMIC CHIP 43PF CERAMIC CHIP 330PF	10% 5% 5%	50 V 50 V 50 V	Q001		TRANSISTOR 2S	C3326N		
C005	1-163-129-00	CERAMIC CHIP 330PF	5%	50 v		RES	ISTOR			
C006 C007 C008 C009 C011	1-131-358-41 1-124-245-00	CERAMIC CHIP 0.022MF	10% 10% 20%	50V 50V 25V 35V 50V	R002 R003 R004 R005 R007	1-216-295-00 1-216-073-00 1-216-057-00 1-216-065-00 1-216-053-00	METAL CHIP	0 5% 10K 5% 2.2K 5% 4.7K 5% 1.5K 5%	1/10W 1/10W 1/10W 1/10W	
C012		CERAMIC CHIP 0.01MF		50 v	R008	1-216-065-00		4.7K 5%	1/10W	
CO13 CO14	1-124-462-00		20%	50 V 16 V	R009 R010	1-216-025-00 1-216-081-00	METAL CHIP	100 5% 22K 5%	1/10W 1/10W	
CO15 CO16	1-163-121-00 1-163-021-00	CERAMIC CHIP 150PF CERAMIC CHIP 0.01MF	5%	50 V 50 V	R011 R012	1-216-097-00 1-216-069-00	METAL CHIP METAL CHIP	100K 5% 6.8K 5%	1/10W 1/10W	
CO17 CO18	1-124-257-00 1-124-251-00	ELECT 0.22MF	20% 20%	50 V 50 V	R013 R014	1-216-057-00 1-216-049-00	METAL CHIP	2.2K 5% 1K 5%	1/10W 1/10W	
CO19 CO20	1-163-076-00	CERAMIC CHIP 0.022MF CERAMIC CHIP 0.068MF		50 V 50 V	R015 R016	1-216-081-00	METAL CHIP METAL CHIP	22K 5% 22K 5%	1/10W 1/10W	
C021	1-124-257-00	ELECT 2.2MF	20%	50 V	RO17	1-216-049-00	METAL CHIP	1K 5%	1/10W	
C022 C023		CERAMIC CHIP 0.001MF	20% 10%	50V 50V	R018 R019	1-216-077-00	METAL CHIP METAL CHIP	1K 5% 15K 5%	1/10W 1/10W	
CO24 CO25 CO26		CERAMIC CHIP 0.001MF CERAMIC CHIP 0.047MF	5% 5%	50V 50V	R020 R021	1-216-077-00	METAL CHIP	330 5% 15K 5%	1/10W 1/10W	
CO27	1-163-117-00	CERAMIC CHIP 100PF CERAMIC CHIP 0.001MF	5% 10%	50 v	R022 R023		METAL CHIP	22K 5%	1/10W	
- ,	100 141-00	OFWARIO OHIE OFOOTHE	100	JUT 1	KU23	1-216-065-00	MCTAL CHIP	4.7K 5%	1/ 1 0W	

CH-44 | IC BS6324 | IC BS7443

Ref.No Part	: No.	Description				Remark	Ref.No	Part No.	Description			Remark
	.6-025-00	METAL CHIP	100	5% 5%	1/10W			CON	NECTOR			
R026 1-21 R029 1-21	6-057-00 .6-073-00 .6-103-00 .6-065-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	2.2K 10K 180K 4.7K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W		J001 J002	1-564-549-11 1-564-548-11				
NOSO I EI		IABLE RESISTO		3.0	1/10		1	<u>COI</u>	<u>L</u>			
RV001 1-23		RES, ADJ, SOI	_				L001 L002	1-408-415-00 1-408-415-00				
		RES, ADJ, SO					1002		NSISTOR	UK 330H		
	TRA	NSFORMER					0001	8-729-100-66		CC1623		
T001 1-40	9-394-11	TRAP, CHROMA	EMPHAS	IS			0002 0003	8-729-100-66	TRANSISTOR 2	SC1623		
	JAC	<u>K</u>					Q004 Q005	8-729-100-66 8-729-100-66 8-729-100-66		SC1623		
W001 *1-56 W002 *1-56	66-103-11 66-102-11	PIN, BOARD TO PIN, BOARD T	O BOARD O BOARD	, 19P , 18P			coop		ISTOR	301023		
	CRY	STAL					R001	1-216-057-00	METAL CHIP	2.2K 5%		•
X001 1-52	7-345-00	CRYSTAL, OSC	(4.43M	Hz)			R002 R003	1-216-049-00	METAL CHIP	1K 5%	1/101	1
*******	******	*****	*****	*****	*****	*****	R004 R005	1-216-033-00 1-216-047-00	METAL CHIP METAL CHIP	220 5% 820 5%		
ICO11 1-80	07-844-11	IC BS6324					R006	1-216-045-00	METAL CHIP	680 5%		
							R008 R009	1-216-059-00 1-216-035-00	METAL CHIP	2.7K 5% 270 5%	1/10	I
2001		ACITOR	4 24 5			4.511	R010 R011	1-216-035-00 1-216-041-00	METAL CHIP METAL CHIP	270 5% 470 5%		
C002 1-16		CERAMIC CHIP			20%	16V 50V	R012	1-216-077-00	METAL CHIP	15K 5%		
C004 1-16		CERAMIC CHIP				50V 50V	R013 R014	1-216-073-00 1-216-043-00	METAL CHIP METAL CHIP	10K 5% 560 5%		
C005 1-16	3-021-00	CERAMIC CHIP	0.01MF			50 v	R016 R017	1-216-075-00 1-216-073-00	METAL CHIP METAL CHIP	12K 5% 10K 5%		
	3-021 - 00 3-035 - 00	CERAMIC CHIP CERAMIC CHIP				50V 50V	R018	1-216-033-00	METAL CHIP	220 5%	1/10	(
C008 1-16	3-141-00 3-021-00	CERAMIC CHIP CERAMIC CHIP	1000PF		5%	50V 50V	R019 R021	1-216-021-00 1-216-043-00	METAL CHIP METAL CHIP	68 5% 560 5%	1/101	l
	3-021-00	CERAMIC CHIP				50V	R022 R023	1-216-045-00 1-216-071-00	METAL CHIP METAL CHIP	680 5% 8.2K 5%	1/10	l
	3-021-00	CERAMIC CHIP				50 V					.,	
CO13 1-16	3-033-00 3-095-00	CERAMIC CHIP	12PF		5%	50V 50V	R024 R025	1-216-039-00 1-216-079-00	METAL CHIP	390 5% 18K 5%	1/101	ł
	3-021-00 3-021-00	CERAMIC CHIP				50V 50V	R026 R027	1-216-079-00 1-216-049-00	METAL CHIP METAL CHIP	18K 5% 1K 5%		
	3-021-00	CERAMIC CHIP	0.01MF			50V	*****	*****	*****	*****	*****	****
	24-462-00 3-035-00	ELECT CERAMIC CHIP	10MF 0.047M	F	20%	16V 50V	IC012	1-807-846-11				
	DIO	DOE							*****			
		DIODE 1SS119							ACITOR			
D002 8-71	19-911-19	DIODE 1SS119					C001 C002	1-163-120-00 1-163-035-00	CERAMIC CHIP CERAMIC CHIP		5%	50V 50V
	TRA	ANSISTOR					C003 C004	1-163-035-00		0.047MF		50V 50V
DT001 8-72	29-901-01	TRANSISTOR D	TC144EK				C005	1-124-236-00			20%	16V
							C006	1-163-035-00	CERAMIC CHIP	0.047MF		5 0 V

IC BS7443 FT-13

Ref.No Part No.	Description		Remark	Ref.No	Part No.	Description			Remark
C008 1-163-035-(C009 1-163-120-(C010 1-163-035-(O CERAMIC CHIP 130PF	5% 5%	50V 50V 50V 50V 50V	R016 R017 R018 R019 R020	1-216-061-00 1-216-045-00 1-216-033-00 1-216-035-00 1-216-053-00	METAL CHIP METAL CHIP METAL CHIP	3.3K 59 680 59 220 59 270 59 1.5K 59	% 1/10 % 1/10 % 1/10	W W W
CO14 1-124-255-C	O CERAMIC CHIP 82PF O CERAMIC CHIP 0.047MF O CERAMIC CHIP 1.0MF	5% 20%	50 V 50 V 50 V	R021 R022 R023 R024 R025	1-216-073-00 1-216-045-00 1-216-045-00 1-216-065-00 1-216-065-00	METAL CHIP METAL CHIP METAL CHIP	10K 55 680 55 680 55 4.7K 55	1/10 1/10 1/10	IW IW IW
D001 8-719-911-1 D002 8-719-911-1 D003 8-719-911-1	9 DIODE 1SS119 9 DIODE 1SS119			R026 R027 R028	1-216-065-00 1-216-073-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	4.7K 5% 4.7K 5% 10K 5% 0 5%	3 1/10 3 1/10 3 1/10	W W
1	RANSISTOR			*****	*****	*******	******	*****	*****
DT001 8-729-901-0	4 TRANSISTOR DTA114EK				*A-7060-470-A	FT-13 BOARD,	COMPLETE	(WG MOD	EL)
DT002 8-729-901-0 DT003 8-729-901-0 DT004 8-729-901-0 DT005 8-729-901-0	4 TRANSISTOR DTA114EK 4 TRANSISTOR DTA114EK 4 TRANSISTOR DTA114EK				*A-7060-477-A	FT-13 BOARD,	COMPLETE	(AEP MO	DEL)
DT006 8-729-901-0	4 TRANSISTOR DTA114EK				*3-689-521-01	HOLDER, LED, KNOB (S), CON	ROUND		
<u>I</u>					*3-697-607-11 *3-716-870-01	HOLDER (SU),	LED . INDICAT	ION TUBE	
ICO01 8-759-925-6	O IC BA401				*3-716-871-01	HOLDER(RIGHT)	, INDICAT	ION TUBE	
C	ONNECTOR				CAP	ACITOR			
	L PIN, BOARD TO BOARD 4P 1 PIN, BOARD TO BOARD 4P			C003 C004 C005 C006	1-163-117-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	100PF 100PF	5% 5% 5%	50V 50V 50V 50V
<u> </u>	RANSISTOR			C009		CERAMIC CHIP	0.01MF		50V 50V
Q001 8-729-100-6 Q002 8-729-100-6 Q003 8-729-100-6 Q004 8-729-100-6	TRANSISTOR 2SC1623			C010 C011 C012 C013	1-163-105-00 1-163-021-00	CERAMIC CHIP : CERAMIC CHIP : CERAMIC CHIP :	33PF 0.01MF	20% 5% 5%	50V 50V 50V 50V
<u>R</u>	ESISTOR			C014	1-163-021-00	CERAMIC CHIP	0.01MF		50 v
R002 1-216-063-0 R003 1-216-041-0 R004 1-216-037-0) METAL CHIP 470 5%) METAL CHIP 330 5%	1/10W 1/10W 1/10W 1/10W	l 	C015 C016 C017 C018 C019		CERAMIC CHIP C		20% 20% 20%	50V 16V 50V 50V 16V
		1/10W		C020	1-163-035-00	CERAMIC CHIP C	.047MF	10%	257
R007 1-216-049-0) METAL CHIP 1K 5%) METAL CHIP 1K 5%	1/10W 1/10W				MMER			201
R008 1-216-031-0 R009 1-216-057-0	METAL CHIP 180 5%	1/10W 1/10W		CVOOL	1-141-294-11				
R010 1-216-063-0		1/10W		0.001					
R011 1-216-057-0 R012 1-216-051-0 R013 1-216-049-0 R014 1-216-057-0 R015 1-216-069-0	METAL CHIP 1.2K 5% METAL CHIP 1K 5% METAL CHIP 2.2K 5%	1/10W 1/10W 1/10W 1/10W 1/10W	,	D001 D002 D003 D004 D005	8-719-801-52 8-719-801-52 8-719-801-52 8-719-801-52 8-719-801-52	DIODE 1SS190 DIODE 1SS190 DIODE 1SS190 DIODE 1SS190			

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description			Re	emark
D006 D007 D008 D009 D010	8-719-801-52 8-719-801-52 8-719-801-52 8-719-801-52 8-719-801-52	DIODE 1SS190 DIODE 1SS190 DIODE 1SS190		R008 R009 R010 R011 R012	1-216-081-00 1-216-093-00 1-216-073-00 1-216-073-00 1-216-085-00	METAL CHIP	22K 68K 10K 10K 33K	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
D011 D012 D013 D024 D025	8-719-801-52 8-719-801-52 8-719-801-52 8-719-106-43 8-719-801-52	DIODE 1SS190 DIODE 1SS190 DIODE RD9.1M		R013 R014 R015 R016 R017	1-216-081-00 1-216-097-00 1-216-097-00 1-216-097-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	22K 100K 100K 100K 10K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
D026 D028 D029 D030 D031	8-719-106-22	DIODE RD7.5M DIODE RD7.5M		R018 R019 R020 R021 R022	1-216-113-00 1-216-113-00 1-216-113-00 1-216-069-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	470K 470K 470K 6.8K 10K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
D032 D033 D034 D035 D036	8-719-812-32 8-719-812-33	DIODE TLY123		R023 R024 R025 R026 R028	1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP METAL CHIP METAL CHIP	10K 10K 10K 10K 10K	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
D037 D038 D039 D040 D041	8-719-812-31 8-719-812-31 8-719-301-49	DIODE TLR123 DIODE TLR123 DIODE TLR123 DIODE SEL2810A DIODE SEL2810A		R029 R031 R033 R036 R037	1-216-065-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP METAL CHIP	4.7K 0 0 0 0	5% 5% 5%	1/10W 1/10W (AEP N 1/10W 1/10W (AEP N 1/10W (AEP N	MODEL)
D042 D043 D044 D045	8-719-812-33 8-719-812-31	DIODE TLY123 DIODE TLG123A DIODE TLR123 DIODE SEL2810A		R038 R041 R042 R043 R044	1-216-295-00 1-216-097-00 1-216-097-00 1-216-097-00 1-216-097-00	METAL CHIP	0 100K 100K 100K 100K	5% 5% 5% 5% 5%	1/10W (AEP N 1/10W 1/10W 1/10W 1/10W	10DEL)
	IND	ICATOR TUBE		R045	1-216-097-00	METAL CHIP	100K	5%	1/10W	
FL001	1-519-410-11 <u>IC</u>	INDICATOR TUBE, FLUORESCENT		R051 R052 R053	1-216-041-00 1-216-041-00 1-216-041-00	METAL CHIP	470 470 470	5% 5% 5%	1/10W 1/10W 1/10W	
	8-759-111-98	IC TC40H004F		R055 R056 R057 R058 R059 R060	1-216-041-00 1-216-041-00 1-216-041-00 1-216-041-00 1-216-041-00	METAL CHIP METAL CHIP METAL CHIP METAL CHIP	470 470 470 470 470 470	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W 1/10W	
10006	8-759-937-21	IC CXD1078M		KOOO				J.6	17 10 #	
	TRA	ANSISTOR				RIABLE RESISTOR	-			
Q001	8-729-162-44	TRANSISTOR 2SB624-BV4		RVUU1	1-237-219-11		RRON IN			
	RES	SISTOR				TCH				
R001 R002 R003 R004 R005	1-216-073-00 1-216-073-00 1-216-073-00 1-216-099-00 1-216-105-00	METAL CHIP 10K 5% 1/10 METAL CHIP 10K 5% 1/10 METAL CHIP 10K 5% 1/10 METAL CHIP 120K 5% 1/10 METAL CHIP 220K 5% 1/10	W W	SW002 SW003 SW004 SW005	1-570-865-11 1-570-854-11 1-570-854-11 1-554-174-42 1-554-174-42	SWITCH, SLIDE SWITCH, SLIDE SWITCH, KEY B SWITCH, KEY B	OARD OARD	10DEL	.)	
R006 R007	1-216-073-00 1-216-081-00	METAL CHIP 10K 5% 1/10 METAL CHIP 22K 5% 1/10		SW006 SW007 SW008	1-554-174-42 1-554-174-42 1-554-174-42	SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B	OARD			

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Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description					Remark
SW010 SW011	1-554-174-42 1-554-174-42 1-554-174-42 1-554-174-42 1-554-174-42	SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B	OARD OARD OARD			CO24 CO25 CO26 CO27 CO28	1-163-021-00 1-123-356-00 1-163-021-00 1-123-332-00 1-123-379-00	ELECT CERAMIC CHIP ELECT	10MF		20% 20% 20%	1 5 1	0V 6V 0V 6V
SW014 SW015 SW016 SW017 SW018	1-554-174-42 1-554-174-42 1-554-174-42	SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B SWITCH, KEY B	OARD OARD OARD			C029 C030 C031 C032 C033	1-106-184-00 1-106-184-00 1-163-103-00 1-123-380-00 1-136-169-00	MYLAR CERAMIC CHIP ELECT	0.0033MF 0.0033MF 27PF 1MF 0.22MF	F	5% 5% 5% 20% 50 V	5 5 5	OV OV OV MODEL)
	1-554-174-42	SWITCH, KEY E SWITCH, KEY E SWITCH, KEY E	BOARD BOARD BOARD			C034 C035 C036 C037 C038	1-123-380-00 1-106-367-00 1-103-741-00 1-136-169-00 1-163-109-00	MYLAR POLYSTYRENE FILM	0.22MF	10% F 5% 5%	100v 50v 50v	(AEP (AEP (AEP	
	1-554-174-42 1-554-174-42	SWITCH, KEY E				C039 C040 C041	1-123-356-00	CERAMIC CHIP ELECT CERAMIC CHIP	10MF			(AEP	MODEL) MODEL) OV
		STAL					CON	NECTOR					
X001 X002 X003	1-567-714-11	VIBRATOR, CRY OSCILLATOR, C OSCILLATOR, C	ERAMIC (700	KHz)		CJ001 CJ002	1-566-285-11 1-566-287-11	CONNECTOR, B	OARD TO I	BOARI BOARI) 6P) 1OF)	
****	*****	*****	*****	*****	******		<u>D10</u>	DE					
	*A-7060-471-A	TU-83 BOARD	, COMPLETE (WG MODE	L) **	D001 D002		DIODE 188123 DIODE 182835					
	*A-7060-607-A	TU-83 BOARD					<u>IC</u>						
	CAF	*********	**********	******	***	IC002	8-759-602-16 8-759-007-54 8-759-907-45	IC TDA4940	AEP MODE	L)			
C001 C002	1-130-493-00 1-130-493-00		0.068MF 0.068MF	5% 5%	50 V 50 V		<u>IF</u>						
C003 C004 C005	1-163-105-00 1-123-318-00	CERAMIC CHIP	33PF 33MF	5% 20% 10%	50V 16V 50V	IFB001 CD1	1-464-697-11	IF BLOCK (IF DISCRIMINATO		IC			
C006	1-123-369-00		4.7MF	20%	25 V		<u>CO1</u>	<u>:L</u>					
C008 C009 C010 C011	1-123-380-00 1-123-380-00 1-123-356-00 1-123-318-00	ELECT ELECT	1MF 1MF 10MF 33MF	20% 20% 20% 20%	50V 50V 16V 16V	L001 L002 L003	1-408-428-00	MICRO INDUCT MICRO INDUCT MICRO INDUCT	OR 390UH				
CO12	1-123-380-00		1MF	20%	50 V		TRA	NSISTOR					
C013 C014 C015 C016	1-123-356-00 1-163-119-00 1-130-072-00 1-123-318-00	CERAMIC CHIP	10MF 120PF 0.022MF 33MF	20% 5% 2% 20%	16V 50V 100V 16V	Q001 Q002 Q003 Q004	8-729-100-67 8-729-100-76 8-729-100-76 8-729-100-67	TRANSISTOR 2 TRANSISTOR 2 TRANSISTOR 2 TRANSISTOR 2	SA812 SA812				
C017 C018 C019 C020 C021	1-106-184-00 1-163-017-00 1-106-184-00 1-123-356-00 1-123-306-00	CERAMIC CHIP MYLAR ELECT	0.0033MF 0.0047MF 0.0033MF 10MF 47MF	5% 10% 5% 20% 20%	50V 50V 50V 16V 10V	Q005 Q006 Q007		TRANSISTOR D TRANSISTOR D TRANSISTOR D	TC144EK				
							RES	SISTOR					
CO22 CO23	1-123-306-00 1-163-021-00		47MF 0.01MF	20%	10V 50V	R001	1-216-081-00	METAL CHIP	22K	5%	1/	10W	

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description		Remark
R002 R003 R004 R005 R007	1-216-109-00 1-216-061-00 1-216-057-00 1-216-057-00 1-216-037-00	METAL CHIP 33 METAL CHIP 3. METAL CHIP 2. METAL CHIP 2. METAL CHIP 33	2K 5% 2K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		S002 S003 S004 S005 S006	1-553-716-00 1-553-716-00 1-554-174-00 1-554-174-00 1-553-716-00	SWITCH, SLIDE SWITCH, SLIDE (WG MODEL) SWITCH, KEY BOARD SWITCH, KEY BOARD SWITCH, SLIDE		
R008 R009 R010 R011 R012	1-216-039-00 1-216-045-00 1-216-063-00 1-216-087-00 1-216-095-00	METAL CHIP 39 METAL CHIP 68 METAL CHIP 3. METAL CHIP 39 METAL CHIP 82	D 5% 9K 5% K 5%			S007 S008 S009 S010 S011	1-553-716-00 1-554-174-00 1-554-174-00 1-554-174-00 1-554-174-00	SWITCH, SLIDE SWITCH, KEY BOARD SWITCH, KEY BOARD SWITCH, KEY BOARD SWITCH, KEY BOARD		
R013 R014 R015 R016 R017	1-216-077-00 1-216-097-00 1-216-097-00 1-216-057-00 1-216-077-00	METAL CHIP 10	OK 5% OK 5% 2K 5%	1/10W 1/10W	P MODEL)			SWITCH, KEY BOARD ***********************************	G MODEL)	*****
R018 R019	1-216-049-00 1-216-049-00	METAL CHIP 1K					CAP	ACITOR	*****	
R020 R021 R022	1-216-057-00 1-216-063-00 1-216-097-00	METAL CHIP 2. METAL CHIP 3. METAL CHIP 10	2K 5% 9K 5% OK 5%	1/10W 1/10W (AE 1/10W (AE	P MODEL)	C001 C002 C003 C004		CERAMIC CHIP 15PF CERAMIC CHIP 0.001MF CERAMIC CHIP 470PF	5% 5%	50V 50V 50V 25V
R023 R024 R025	1-216-097-00 1-216-075-00 1-216-089-00	METAL CHIP 12 METAL CHIP 47	OK 5% K 5% K 5%	1/10W (AE 1/10W (AE 1/10W (AE	P MODEL) P MODEL)	C005	1-163-127-00	CERAMIC CHIP 270PF	5%	50V 50V
R026 R027	1-216-067-00 1-216-067-00	METAL CHIP 5.	6K 5% 6K 5%	1/10W (AE 1/10W (AE	EP MODEL)	C006 C007 C008	1-163-117-00 1-163-097-00 1-124-245-00	CERAMIC CHIP 15PF ELECT 4.7MF	5% 20%	50V 50V 16V 50V
R028 R029	1-216-025-00 1-216-295-00		UK 5% 5%	1/10W (AE 1/10W	LP MUDEL)	C009 C010	1-163-115-00 1-163-033-00	CERAMIC CHIP 82PF CERAMIC CHIP 0.022MF		25 V
RV001		RIABLE RESISTOR RES, ADJ, CARBON	47K (AEP MODEL	ı	C011 C012 C013 C014	1-124-234-00 1-163-021-00 1-163-833-00 1-163-033-00	CERAMIC CHIP 0.01MF CERAMIC CHIP 0.068MF CERAMIC CHIP 0.022MF	10%	16V 50V 25V 25V
	TU	<u>NER</u>				C015	1-124-245-00	ELECT 4.7MF	20%	16V
		TUNER, ET (BT-88		****	*****	C016 C017 C018	1-163-105-00 1-163-105-00 1-163-033-00	CERAMIC CHIP 33PF CERAMIC CHIP 33PF CERAMIC CHIP 0.022MF	5%	50V 50V 25V
		PR-13 BOARD, CO	MPLET	E (WG MODE	L)	0010		INECTOR		
	*A-7060-609-A	**************************************	MPLET	E (AEP MOD	EL)			PIN, CONNECTOR 8P PIN, CONNECTOR 4P		
	co						IC			
CN001 CN002	*1-564-012-00	NNECTOR PIN, CONNECTOR (PIN, CONNECTOR (P (WG	MODEL)		1C002 1C003	8-759-929-51 8-759-103-25 8-759-929-52 8-759-111-94	IC UPD4053BG		
DIODE						COIL				
D002 D003 D004	8-719-911-19	DIODE 188119 DIODE 188119 DIODE 188119				L001		MICRO INDUCTOR 10UH		
D004 8-719-911-19 DIODE 1SS119 SWITCH							TRAN	NSISTOR		
S001		SWITCH, SLIDE				Q001	8-729-901-01	TRANSISTOR DTC144EK		

The components identified by shading and mark ${\underline{\mathbb{A}}}$ are critical for safety. Replace only with part number specified.

VP-1

TS-50

Ref.No	Part No.	Description	Remark	Ref.No Pa	art No.	<u>Description</u>	Remark
	RES	SISTOR			CON	NECTOR	
R001 R002 R003 R004 R101	1-216-025-00 1-216-085-00 1-216-097-00 1-216-097-00 1-216-295-00	METAL CHIP 33K 5% METAL CHIP 100K 5% METAL CHIP 100K 5%	1/10W 1/10W 1/10W	CN102 *1- CN103 *1- CN104 *1-	-560-893-00 -560-892-00 -560-893-00	PIN, CONNECTOR 3P PIN, CONNECTOR 5P PIN, CONNECTOR 4P PIN, CONNECTOR 5P PIN, CONNECTOR 8P	
R102 R103	1-216-295-00 1-216-295-00	METAL CHIP 0 5% METAL CHIP 0 5%				PIN, CONNECTOR 4P	(WG MODEL)
	CRY	(STAL			DIO	<u>DE</u>	
X001 X002	1-527-317-00	OSCILLATOR, CRYSTAL (10 OSCILLATOR, CERAMIC (4	DMHz) .19MHz)	D101 8-	-719-100-03 <u>IC</u>	DIODE 1S2835	
*****	******	*********	******	IC101 8-		IC M50434-019SP	
	*A-7060-482-A	TS-50 BOARD, COMPLETE	(WG MODEL)	IC102 8- IC103 8-		IC M58655P IC TDA4944	
	*A-7060-608-A	TS-50 BOARD, COMPLETE	(AEP MODEL)		COIL	<u>-</u>	
	CAP	ACITOR		L101 1-	408-408-00	MICRO INDUCTOR 8.2U	Н
C101	1-123-307-00	ELECT 100MF	20% 10 v		IC L	INK	
C102 C103	1-163-117-00 1-123-369-00	CERAMIC CHIP 100PF ELECT 4.7MF	5% 50V 20% 25V	PS101 <u>1</u> .1-	532-637-00	LINK, IC (ICP-N25)	
C104 C105	1-163-109-00 1-163-109-00	CERAMIC CHIP 47PF CERAMIC CHIP 47PF	5% 50V 5% 50V		TRAN	ISISTOR	
C106 C107 C108 C109 C110	1-123-822-00 1-163-019-00 1-123-356-00 1-123-318-00 1-123-379-00	CERAMIC CHIP 0.0068MF ELECT 10MF ELECT 33MF	20% 10V 10% 50V 20% 16V 20% 16V 20% 50V	Q102 8-7 Q103 8-7 Q104 8-7	729-100-67 729-100-67 729-100-67	TRANSISTOR 2SC1623- TRANSISTOR 2SC1623- TRANSISTOR 2SC1623- TRANSISTOR 2SC1623- TRANSISTOR 2SC1623- TRANSISTOR 2SC1623-	L7 L7 L7
C111 C112 C113 C114	1-123-369-00 1-123-356-00 1-163-021-00 1-130-483-00	ELECT 10MF 20%	20% 25V 16V (WG MODEL) 50V 5% 50V	010\ 8-\	729-100-76 729-901-01	TRANSISTOR 2SC1623-L TRANSISTOR 2SAB12 () TRANSISTOR DTC144EK	L7 NG MODEL)
C115	1-123-816-00		20% 50V		RESI		
C116 C117 C118 C119 C120	1-130-483-00 1-123-369-00 1-123-369-00 1-130-483-00 1-123-379-00	ELECT 4.7MF ELECT 4.7MF MYLAR 0.01MF	5% 50V 20% 25V 20% 25V 5% 50V 20% 50V	R102 1-2 R103 1-2 R103 1-2	216-049-00 216-045-00 216-055-00 216-295-00 216-061-00	METAL CHIP 680 METAL CHIP 1.8K 5	5% 1/10W 5% 1/10W % 1/10W (AEP MODEL) % 1/10W (WG MODEL) 5% 1/10W
C121 C122 C124 C125 C126	1-130-495-00 1-163-818-00 1-163-141-00	CERAMIC CHIP 100PF MYLAR 0.1MF CERAMIC CHIP 0.1MF 10% CERAMIC CHIP 0.001MF 10% CERAMIC CHIP 0.01MF	5% 50V 5% 50V 50V (WG MODEL) % 50V (WG MODEL) 50V	R106 1-2 R107 1-2 R108 1-2		METAL CHIP 2.2K METAL CHIP 3.3K METAL CHIP 10K	5% 1/10W 5% 1/10W 5% 1/LOW
C127 C128		ELECT 47MF CERAMIC CHIP 0.01MF	20% 16V 50V	R112 1-2 R113 1-2 R114 1-2	16-061-00 M 16-073-00 M 16-073-00 M	METAL CHIP 3.3K METAL CHIP 10K METAL CHIP 10K	5% 1/LOW 5% 1/LOW 5% 1/LOW 5% 1/LOW
CJ101 CJ102	1-563-717-11	CONNECTOR, BOARD TO BOAR CONNECTOR, BOARD TO BOAR	RD 6P RD 10P	R116 1-2	16-077-00 M 16-045-00 M 16-081-00 M	METAL CHIP 680	5% 1/1 OW 5% 1/1 OW 5% 1/1 OW

The components identified by shading and mark Λ are critical for safety. Replace only with part number specified:

		TS	-5()	С	B-8	F	R-24	DS	5-1 (6	D	R-35
Ref.No	Part No. 1-216-081-00	Description METAL CHIP	22K	5% 5%	1/10W	Remark	Ref.No RO02 RO03	Part No. 1-216-037-00 1-216-037-00	Description METAL CHIP METAL CHIP	330 330	5% 5%	1/10W 1/10W	Remark
R119 R120 R121 R122	1-247-713-11 1-216-081-00 1-216-081-00 1-216-091-00	CARBON METAL CHIP METAL CHIP METAL CHIP	1K 22K 22K 56K	5% 5% 5% 5%	1/4W 1/10W 1/10W 1/10W	t	R003 R004 R005 R006	1-216-037-00 1-216-037-00 1-216-037-00 1-216-037-00	METAL CHIP METAL CHIP METAL CHIP	330 330 330	5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W	

D110	1-247-713-11	CARBON	1K	5%	1/4W F
	1-216-081-00			5%	
	1-216-081-00		_	5%	1/10W
	1-216-091-00		56K	5%	
KILL	1- 510-031-00	HETTE OHE	0011	•	-,
R123	1-216-093-00	METAL CHIP	68K	5%	1/10W
R124		METAL CHIP	10K	5%	1/10W
R125	1-216-073-00	METAL CHIP	10K	5%	1/10W
R126	1-216-073-00	METAL CHIP	10K	5%	1/10W
R127	1-216-073-00 1-216-073-00 1-216-073-00	METAL CHIP	10K	5%	1/10W
R128	1-216-055-00	METAL CHIP	1.8K		
R129	1-216-047-00	METAL CHIP	820	5%	1/10W
R130	1-216-073-00	METAL CHIP	1.0K	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R133	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
	1-216-067-00			5%	1/10W
	1-216-045-00			5%	1/10W
	1-216-065-00				
R137	1-216-065-00	METAL CHIP		5%	1/10W
R138	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R139		METAL CHIP	680	5%	1/10W
R140		METAL CHIP	1K	5%	1/10W (WG MODEL)
	1-216-109-00	METAL CHIP	330K	5%	1/10W (WG MODEL)
R142	1-216-121-00	METAL CHIP	1M		1/10W (WG MODEL)
R143	1-216-081-00	METAL CHIP	22K	5%	1/10W (WG MODEL)
R144	1-216-033-00	METAL CHIP	220	5%	1/10W
	VA	RIABLE RESISTO	<u>R</u>		
RV101	1-228-996-00	RES, ADJ, CA	RBON 4	7K	
	CD.	IATON			
	<u>CR</u>	YSTAL			
					V

X101 1-567-121-00 VIBRATOR, CRYSTAL (4.19MHz)

*1-621-987-11 CB-8 BOARD

CONNECTOR

CN001 *1-564-005-00 PIN, CONNECTOR 6P CN002 *1-564-006-11 PIN, CONNECTOR 7P

DIODE

D001	8-719-106-22	DIODE	RD7.5M-B1
D002	8-719-106-22	DIODE	RD7.5M-B1
D003	8-719-106-22	DIODE	RD7.5M-B1
D004	8-719-106-22	DIODE	RD7.5M-B1
D005	8-719-106-22	DIODE	RD7.5M-B1
D006	8-719-106-22	DIODE	RD7.5M-B1

RESISTOR

330 5% 1/10W R001 1-216-037-00 METAL CHIP

8-719-812-32 DIODE TLY123 8-719-812-33 DIODE TLG123A 8-719-812-33 DIODE TLG123A D001 D002 D003

*1-622-006-11 DS-16 BOARD

*1-621-985-11 FR-24 BOARD

DIODE

*3-689-521-01 HOLDER, LED, ROUND

 Δ *1-533-189-11 HOLDER, FUSE Δ .2-430-344-01 COVER (CC-1017), INSULATING

CAPACITOR

C401 1.1-136-472-13	FILM	0.1MF	20%	250V
C402 A.1-161-742-00	CERAMIC	0.0022MF	20%	400¥
C403 A.1-161-742-00	CERAMIC	0.0022MF	20%	4000
C404 A.1-161-742-00	CERAMIC	0.0022MF	20%	400V
C405 A.1-161-742-00	CERAMIC	0.0022MF	20%	400V

CONNECTOR

CN401 *1-560-891-00 PIN, CONNECTOR 3P

FUSE

F401 A.1-532-279-00 FUSE, TIME-LAG (T500mA 250V)

TRANSFORMER

T402 A.1-421-357-31 TRANSFORMER, LINE FILTER

*A-7060-585-A DR-35 BOARD, COMPLETE

7-685-646-79 SCREW +BVTP 3X8 TYPE2 IT-3

CAPACITOR

C201 C202 C203 C204 C205	1-124-255-00 1-163-141-00 1-163-038-00 1-163-038-00 1-123-874-00		0.1MF	20% 5% 20%	50V 50V 25V 25V 16V
C207	1-124-124-00	ELECT	220MF	20%	6.30

The components identified by shading and mark ${\bf A}$ are critical for safety. Replace only with part number specified.

DR-35

Ref.No Part No. Description			Remark	Ref.No	Part No.	Description			Remark
C210 1-163-038-00 CERAMIC CHIP C211 1-163-141-00 CERAMIC CHIP	220MF 0.1MF	20% 5% 20%	25V 6.3V 25V 50V	JR009 JR010 JR011	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP O	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
	470MF 100MF 0.1MF	20% 20% 5%	25V 16V 16V 25V 50V	JR014 JR015 JR016	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00	METAL CHIP O	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/8W	
C219 1-163-139-00 CERAMIC CHIP C220 1-163-038-00 CERAMIC CHIP C221 1-163-038-00 CERAMIC CHIP C223 1-123-333-00 ELECT C224 1-163-038-00 CERAMIC CHIP	0.1MF 0.1MF 100MF	5% 20%	50V 25V 25V 16V 25V	JR019 JR020 JR021	1-216-296-00 1-216-296-00 1-216-296-00 1-216-296-00 1-216-295-00	METAL CHIP O	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/8W 1/10W	
C226 1-163-038-00 CERAMIC CHIP	470MF 0.1MF	20% 20%	16V 25V 25V 25V 25V	JR024 JR025 JR026	1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00 1-216-295-00	METAL CHIP O METAL CHIP O METAL CHIP O METAL CHIP O METAL CHIP O	5% 5% 5% 5% 5%	1/10W 1/10W 1/10W 1/10W 1/10W	
C232 1-123-299-00 ELECT	1000MF 1000MF 470MF	20% 20% 20%	25V 6.3V 6.3V 16V 25V	JR029	1-216-295-00 1-216-295-00 1-216-295-00		5% 5% 5%	1/10W 1/10W 1/10W	
C240 1-124-123-00 ELECT C241 1-123-296-00 ELECT	100MF 220MF	20% 20%	6.3V 6.3V	L201 L202 L203		COIL, CHOKE 200UH COIL, CHOKE 20UH COIL, CHOKE 20UH			
CONNECTOR				L205 L206	1-408-944-00 1-408-945-00	COIL, CHOKE 200H COIL, CHOKE 200UH			
CN201 *1-560-892-00 PIN, CONNECTO CN202 *1-560-895-00 PIN, CONNECTO CN203 *1-560-894-00 PIN, CONNECTO CN204 *1-560-890-00 PIN, CONNECTO	OR 7P OR 6P			L207 L208 L209 L210	1-408-944-00	COIL, CHOKE 20UH COIL, CHOKE 20UH			
DIODE				L211	1-408-944-00	COIL, CHOKE 200H			
D201 8-719-200-00 DIODE 31DQ05 D202 8-719-200-00 DIODE 31DQ05				L264	1-408-945-00	COIL, CHOKE 200UH			
D203 8-719-200-00 DIODE 31DQ05 D204 8-719-100-03 DIODE 1S2835						LINK			
D205 A.8-719-110-02 DIODE RD7.5ES	281			P\$202 <u>/</u>		LINK, IC (ICP-F15)			
<u>IC</u> IC201 8-759-908-95 IC TL1451CNS				0201		<u>INSISTOR</u> TRANSISTOR 2SA1441-	4		
IC202 8-759-908-95 IC TL1451CNS				0202 0203		TRANSISTOR 2SC1623 TRANSISTOR 2SA812			
JUMPER RESISTOR		4 (0)		Q204 Q205	8-729-113-33 8-729-112-61	TRANSISTOR 2SB733-4 TRANSISTOR 2SA1441-			
JR001 1-216-296-00 METAL CHIP JR002 1-216-296-00 METAL CHIP JR003 1-216-296-00 METAL CHIP JR004 1-216-296-00 METAL CHIP JR005 1-216-296-00 METAL CHIP	0 5% 0 5% 0 5% 0 5% 0 5%	1/8W 1/8W 1/8W 1/8W 1/8W		Q206 Q207 Q208 Q209 Q210	8-729-100-66 8-729-100-76 8-729-901-01 8-729-112-61 8-729-100-66	TRANSISTOR 2SC1623 TRANSISTOR 2SA812 TRANSISTOR DTC144EK TRANSISTOR 2SC1623			
JR006 1-216-296-00 METAL CHIP JR007 1-216-296-00 METAL CHIP	0 5% 0 5%	1/8W 1/8W		Q211	8-729-100-76	TRANSISTOR 2SA812			

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
Q212 Q213 Q214	8-729-901-01 8-729-901-01	TRANSISTOR DTC144 TRANSISTOR DTC144 TRANSISTOR DTC144	1EK			C006 C007 C008 C009	1-163-019-00 1-130-026-00 1-163-017-00 1-124-245-00	CERAMIC CHIP FILM CERAMIC CHIP ELECT	0.0047MF 0.0047MF 4.7MF	10% 5% 10% 20%	50V 50V 50V 25V
	RES	ISTOR				C010	1-163-021-00	CERAMIC CHIP	0.01MF		50V
R201 R202 R203 R204 R205	1-216-085-00 1-216-085-00 1-216-115-00 1-249-413-11 1-216-055-00	METAL CHIP 331 METAL CHIP 331 METAL CHIP 560 CARBON 470 METAL CHIP 1.3	(5% OK 5% O 5%	1/10W 1/10W 1/10W 1/6W 1/10W		C011 C012 C013 C014 C015	1-123-333-00 1-135-072-21 1-163-075-00 1-123-333-00 1-135-074-21	ELECT TANTAL. CHIP CERAMIC CHIP ELECT TANTAL. CHIP	0.047MF 100MF	20% 20% 20% 20%	25V 35V 50V 25V 35V
R206 R207 R208 R210 R211	1-216-055-00 1-216-051-00 1-216-095-00 1-216-065-00 1-216-033-00	METAL CHIP 1.3 METAL CHIP 1.3 METAL CHIP 82 METAL CHIP 4. METAL CHIP 22	2K 5% K 5% 7K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		C016 C017 C018 C019 C020	1-130-491-00 1-124-236-00 1-163-112-00 1-163-114-00 1-163-103-00	MYLAR ELECT CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	75PF	5% 20% 5% 5% 5%	50V 16V 50V 50V 50V
R212 R213 R214 R215 R216	1-216-687-11 1-216-687-11 1-216-115-00 1-249-413-11 1-216-055-00	METAL CHIP 33 METAL CHIP 33 METAL CHIP 56 CARBON 47 METAL CHIP 1.	K 0.50% OK 5%	1/16W 1/16W 1/10W 1/6W 1/10W		C021 C022 C023 C024 C025	1-124-236-00 1-163-106-00 1-163-117-00 1-163-096-00 1-124-462-00	ELECT CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP ELECT	100PF	20% 5% 5% 5% 20%	16V 50V 50V 50V 16V
R217 R218 R219 R220 R221	1-216-055-00 1-216-051-00 1-216-699-11 1-216-679-11 1-216-085-00	METAL CHIP 1. METAL CHIP 10 METAL CHIP 15 METAL CHIP 33	2K 5% OK 0.50% K 0.50%	1/10W 1/10W 1/16W 1/16W 1/10W		C026 C027 C028 C029 C030	1-163-129-00 1-162-816-11 1-163-077-00 1-163-077-00 1-163-139-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	180PF 0.1MF 0.1MF	5% 5% 5%	50V 50V 50V 50V
R222 R223 R224 R225 R226	1-216-085-00 1-216-067-00 1-216-115-00 1-216-055-00 1-216-055-00	METAL CHIP 56 METAL CHIP 1.	K 5% 6K 5% OK 5% 8K 5% 8K 5%	1/10W 1/10W 1/10W 1/10W 1/10W		C031 C032 C033 C035 C036	1-163-109-00 1-124-255-00 1-123-332-00 1-124-245-00 1-124-236-00	CERAMIC CHIP ELECT ELECT ELECT ELECT	47PF 1MF 47MF 4.7MF 47MF	5% 20% 20% 20% 20%	50V 50V 25V 25V 16V
R227 R228 R229 R230 R232	1-216-065-00 1-216-099-00 1-216-075-00 1-216-081-00 1-216-055-00	METAL CHIP 12 METAL CHIP 12 METAL CHIP 22		1/10W 1/10W 1/10W 1/10W 1/10W		C037 C038 C039 C040 C041	1-124-236-00 1-124-257-00 1-163-075-00 1-163-133-00 1-163-077-00	ELECT ELECT CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	470PF	20% 20% 5%	16V 35V 50V 50V 50V
R233	1-216-091-00 VAF	METAL CHIP 56	K 5%	1/10W		C042 C043 C044	1-163-117-00 1-163-021-00 1-124-255-00	CERAMIC CHIP CERAMIC CHIP ELECT	0.01MF 1MF	5% 2 0%	50V 50V 50V
RV201 RV202	1-230-523-11		GLAZE 10K			C045 C046	1-135-070-00 1-124-240-00 1-163-141-00	TANTAL. CHIP ELECT CERAMIC CHIP	10MF	20% 20% 5%	35V 25V 50V
RV203	1-230-522-11	RES, ADJ, METAL				C048	1-163-063-00	CERAMIC CHIP	0.022MF		50V
		TC-3 BOARD, COM	IPLETE (WG	MODEL))	C049 C050 C051	1-163-063-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.022MF	5%	50V 50V 50V
	CAC	DACITOD				C053 C054		CERAMIC CHIP CERAMIC CHIP		5%	50V 50V
C001 C002	1-124-236-00 1-163-075-00	CERAMIC CHIP 0.0)47MF	20%	16V 50V	C054 C055 C056 C057	1-163-075-00 1-163-075-00	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.047MF 0.047MF	↓ 10	50V 50V 50V
C003 C004		CERAMIC CHIP 180 CERAMIC CHIP 0.0		5%	50V 50V		COI	NECTOR			
C005		CERAMIC CHIP 100		5%	50V	CN001	*1-564-014-00		OR 4P		

TC-3

TRINMER State Pink Column Col	Ref.N	o Part No.	Description	Remark	Ref.No	Part No.	Description				
TRIMMER	CNOO	2 *1-564-014-00	PIN, CONNECTOR 4P					-	d Fa	1 (10)	Remark
1-141-227-00 CAP, CERAMIC TRIMMER 20PF 8000 1-216-093-00 METAL CHIP 120K 5% 1/10W		TRI	MMER		R007	1-216-085-00	METAL CHIP	33K	5%	1/10W	
DIJUDE	CV001	l 1-141-227-00	CAP. CERAMIC TRIMMER 20PF		R009	1-216-063-00	METAL CHIP	3.9k	5%		
Note									5%	1/10W	
Decay 1.719-911-06 Didde 15S106	D001				R012	1-216-097-00	METAL CHIP				
DELAY LINE		8-719-911-06	DIODE 1SS106		R014	1-216-127-11	METAL CHIP			1/10W	
ICO01 8-759-933-40 IC H014538BP R012 1-216-083-00 METAL CHIP 22K 5% 1/10W		DEL	AY LINE		R015		METAL CHIP				
IC	DL001	1-415-313-00	DELAY LINE (1H)			1-216-003-11 1-216-097-00	METAL CHIP				
No.		<u>IC</u>				1-216-081-00	METAL CHIP	22K	5%	1/10W	
Total Tota	IC001	8-759-933-40									
Coll	10003	8-759-345-38	IC TC4538BP			1-216-081-00					
Note	IC004	8-752-006-10	IC CX20061		R023	1-216-079-00	METAL CHIP	18K	5%		
LOUG		<u>C01</u>	<u>L</u>			1-216-041-00					
LO03		1-408-787-00 1-408-789-21				1-216-049-00	METAL CHIP	1K	5%	1/10W	
1-408-768-21 INDUCTOR CHIP 820H R030 1-216-083-00 METAL CHIP 27K 5% 1/10W		1-408-786-21	INDUCTOR CHIP 5611H		R028	1-216-085-00	METAL CHIP				
LOO6		1-408-788-21	INDUCTOR CHIP 82UH						5%	1/10W	
1-408-789-21 INDUCTOR CHIP 8.20H R033 1-216-049-00 METAL CHIP 1K 5% 1/10W R034 1-216-049-00 METAL CHIP 1K 5% 1/10W R034 1-216-049-00 METAL CHIP 1K 5% 1/10W R035 1-216-061-00 METAL CHIP 1K 5% 1/10W R036 1-216-061-00 METAL CHIP 470 5% 1/10W R037 1-216-061-00 METAL CHIP 470 5% 1/10W R037 1-216-061-00 METAL CHIP 470 5% 1/10W R038 1-216-039-00 METAL CHIP 470 5% 1/10W R038 1-216-041-00 METAL CHIP 470 5% 1/10W R036 1-216-041-00 METAL CHIP 470 5% 1/10W R036 1-216-041-00 METAL CHIP 470 5% 1/10W R037 1-216-041-00 METAL CHIP 470 5% 1/10W R038 1-216-041-00 METAL CHIP 470 5% 1/10W R040 1-216-041-00 METAL CHIP 470 5% 1/10W R040 1-216-041-00 METAL CHIP 470 5% 1/10W R040 1-216-041-00 METAL CHIP 1K 5% 1/10W R050 1-216-041-00 METAL CH		1-408-775-41	INDUCTOR CHIP 6.8UH		R031	1-216-045-00	METAL CHIP				
VARIABLE COIL R035 1-216-067-00 METAL CHIP 5.6K 5% 1/10W		1-408-789-21	INDUCTOR CHIP 8.20H			1-216-049-00	METAL CHIP	1K	5%	1/10W	
LV001 1-408-512-00 C0IL (VARIABLE) 10UH R036 1-216-041-00 METAL CHIP 470 5% 1/10W R037 1-216-041-00 METAL CHIP 470 5% 1/10W R037 1-216-041-00 METAL CHIP 470 5% 1/10W R038 1-216-041-00 METAL CHIP 470 5% 1/10W R039 1-216-041-00 METAL CHIP 470 5% 1/10W R030 8-729-100-67 TRANSISTOR 2SC1623-L7 R042 1-216-049-00 METAL CHIP 17 8% 1/10W R039 1-216-049-00 METAL CHIP 18 5% 1/10W R039 1-216-057-00 METAL CHIP 10W 5% 1/10W R039 1-216-037-00 METAL CHIP 10W 5% 1/10W R039 1-216-03		VAR	TABLE COIL			1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
1-408-512-00 COIL (VARIABLE) 3.3UH R037 1-216-041-00 METAL CHIP 470 5% 1/10W R038 1-216-039-00 METAL CHIP 470 5% 1/10W R040 1-216-041-00 METAL CHIP 10K 5% 1/10W R050 1-216-041-00 METAL C	LV001	1-408-512-00	COIL (VARIABLE) 10UH								
TRANSISTOR	LV002	1-408-530-00 1-408-512-00	COIL (VARIABLE) 3.3UH COIL (VARIABLE) 10UH		R037	1-216-041-00	METAL CHIP	470	5%	1/10W	
Q001 8-729-100-67 TRANSISTOR 2SC1623-L7 R041 1-216-057-00 METAL CHIP 2.2K 5% 1/10W R042 1-216-049-00 METAL CHIP 1K 5% 1/10W R044 1-216-049-00 METAL CHIP 2.2K 5% 1/10W R045 1-216-053-00 METAL CHIP 1K 5% 1/10W R055 1-216-057-00 METAL CHIP 1K 5% 1/10W R057 1-216-057-00 METAL CHIP 1K 5% 1/10W R057 1-216-053-00 METAL CHIP 560 5% 1/10W R057 1-21					R039	1-216-041-00	METAL CHIP	470	5%	1/10W	
Note		8-729-100-67	TRANSISTOR 2SC1623-L7								
Note		8-729-100-67 8-729-100-67	TRANSISTOR 2SC1623-L7 TRANSISTOR 2SC1623-L7		R042	1-216-049-00	METAL CHIP	1K	5%		
Q006 8-729-100-67 TRANSISTOR 2SC1623-L7 Q007 8-729-901-04 TRANSISTOR DTA114EK Q008 8-729-100-67 TRANSISTOR 2SC1623 Q009 8-729-100-67 TRANSISTOR 2SC1623 Q010 R051 1-216-089-00 METAL CHIP 10K 5% 1/10W R052 1-216-053-00 METAL CHIP 2.2K 5% 1/10W R053 1-216-053-00 METAL CHIP 10K 5% 1/10W R054 1-216-043-00 METAL CHIP 10K 5% 1/10W R055 1-216-053-00 METAL CHIP 10K 5% 1/10W R055 1-216-053-00 METAL CHIP 390 5% 1/10W R056 1-216-053-00 METAL CHIP 390 5% 1/10W R057 1-216-033-00 METAL CHIP 390 5% 1/10W R058 1-216-053-00 METAL CHIP 390 5% 1/10W R059 1-216-053-00 METAL CHIP 390 5% 1/10W		8-729-100-67	TRANSISTOR 2501623-17		R044	1-216-049-00	METAL CHIP	1K			
Note	Q006							2.2K	5%	1/10W	
RO09 8-729-100-67 TRANSISTOR 2SC1623 RO48 1-216-049-00 METAL CHIP 1K 5% 1/10W RO50 1-216-089-00 METAL CHIP 1K 5% 1/10W RO50 1-216-089-00 METAL CHIP 47K 5% 1/10W RO50 1-216-073-00 METAL CHIP 10K 5% 1/10W RO50 1-216-073-00 METAL CHIP 10K 5% 1/10W RO50 1-216-073-00 METAL CHIP 10K 5% 1/10W RO50 1-216-043-00 METAL CHIP 1.5K 5% 1/10W RO50 1-216-043-00 METAL CHIP 390 5% 1/10W RO50 1-216-053-00 METAL CHIP 390 5% 1/10W RO50 1-216-033-00 METAL CHIP 390 5% 1/10W RO50		8-729-901-04	TRANSISTOR DTA114FK	-	R047	1-216-073-00 M	METAL CHIP				
Q012 8-729-100-67 TRANSISTOR 2SC1623 R050 1-216-089-00 METAL CHIP 47K 5% 1/10W RESISTOR R051 1-216-089-00 METAL CHIP 47K 5% 1/10W R052 1-216-053-00 METAL CHIP 10K 5% 1/10W R053 1-216-073-00 METAL CHIP 10K 5% 1/10W R054 1-216-053-00 METAL CHIP 10K 5% 1/10W R055 1-216-053-00 METAL CHIP 10K 5% 1/10W R056 1-216-053-00 METAL CHIP 10K 5% 1/10W R057 1-216-053-00 METAL CHIP 390 5% 1/10W R058 1-216-053-00 METAL CHIP 390 5% 1/10W R059 1-216-053-00 METAL CHIP 1.5K 5% 1/10W R059 1-216-053-00 METAL CHIP 390 5% 1/10W R059 1-216-053-00 METAL CHIP 390 5% 1/10W R059 1-216-053-00 METAL CHIP 390 5% 1/10W	Q009	8-729-100-67	TRANSISTOR 2SC1623		R049	1-216-049-00 I 1-216-073-00 N	METAL CHIP METAL CHIP			1/10W	
RO01 1-216-093-00 METAL CHIP 18K 5% 1/10W RO02 1-216-079-00 METAL CHIP 18K 5% 1/10W RO03 1-216-057-00 METAL CHIP 18K 5% 1/10W RO04 1-216-043-00 METAL CHIP 2.2K 5% 1/10W RO05 1-216-053-00 METAL CHIP 560 5% 1/10W RO05 1-216-053-00 METAL CHIP 390 5% 1/10W RO06 1-216-053-00 METAL CHIP 390 5% 1/10W RO07 1-216-053-00 METAL CHIP 390 5% 1/10W RO08 1-216-053-00 METAL CHIP 390 5% 1/10W RO09 1-216-053-00 METAL CHIP 390 5% 1/10W RO09 1-216-053-00 METAL CHIP 390 5% 1/10W RO09 1-216-053-00 METAL CHIP 390 5% 1/10W					R050	1-216 - 089-00 M	METAL CHIP				
RO01 1-216-093-00 METAL CHIP 68K 5% 1/10W RO02 1-216-079-00 METAL CHIP 18K 5% 1/10W RO03 1-216-043-00 METAL CHIP 2.2K 5% 1/10W RO04 1-216-043-00 METAL CHIP 560 5% 1/10W RO05 1-216-053-00 METAL CHIP 560 5% 1/10W RO05 1-216-053-00 METAL CHIP 560 5% 1/10W RO05 1-216-053-00 METAL CHIP 390 5% 1/10W RO05 1-216-053-00 METAL CHIP	4-7-				R052	1-216-057-00 N	METAL CHIP				
RO02 1-216-079-00 METAL CHIP 68K 5% 1/10W RO05 1-216-053-00 METAL CHIP 1.5K 5% 1/10W RO05 1-216-053-00 METAL CHIP 560 5% 1/10W RO05 1-216-053-00 METAL CHIP 560 5% 1/10W RO05 1-216-053-00 METAL CHIP 390 5% 1/10W RO05 1-216-053-00 METAL CHIP 300 METAL CHIP 300 METAL CHIP 300 METAL CH	R001		NET 11 OUT 1		R053	1-216-073-00 M	METAL CHIP	10K	5%	1/10W	
ROO3 1-216-057-00 METAL CHIP 2.2K 5% 1/10W RO56 1-216-039-00 METAL CHIP 390 5% 1/10W RO55 1-216-053-00 METAL CHIP 1.5K 5% 1/10W RO57 1-216-039-00 METAL CHIP 390 5% 1/10W RO57 1-216-039-00 METAL CHIP 390 5% 1/10W	R002	1-216-079-00	METAL CHIP 18K 5% 1/10W				ETAL CHIP				
ROUS 1-216-053-00 METAL CHIP 1.5K 5% 1/10W POSS 1.316 073 00 METAL CHIP 390 5% 1/10W	R004	1-216-043-00	METAL CHIP 2.2K 5% 1/10W METAL CHIP 560 5% 1/10W								
	KUU5	1-216-053-00]		1-216-073-00 M	ETAL CHIP				

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description				Remark
R059	1-216-091-00	METAL CHIP 56K	5% 1/10W			<u>IC</u>					
		IABLE RESISTOR			IC721	8-759-106-02	IC UPC4570G2				
RV001	1-230-871-11	RES, ADJ, METAL GLAZ	E 22K			JAC	K				
RV002	1-230-873-11 1-230-871-11	RES, ADJ, METAL GLAZ	E 47K		J301	1-507-899-21	 JACK (SMALL 1	TYPE)			
RV004	1-230-867-11 1-230-867-11		'E 1K		J401	1-507-899-00	JACK (SMALL 1	TYPE)			
						JUM	PER RESISTOR				
RV006 RV007		RES, ADJ, METAL GLAZ RES, ADJ, METAL GLAZ			JR053 JR054	1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP	0 0	5% 5%	1/10W 1/10W	
	CRY	STAL				1-216-295-00 1-216-295-00	METAL CHIP METAL CHIP	0	5% 5%	1/10W 1/10W	
X001	1-527-345-00	CRYSTAL, OSC (4.43M	12)			1-216-295-00	METAL CHIP	Ö	5%	1/10W	
*****	******	******	*****	*****	JR099	1-216-296-00	METAL CHIP	0	5%	1/8W	
	*A-7070-024-A	LD-1 BOARD, COMPLET				RES	ISTOR				
		*****	**		R710	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
	DIC	<u>DDE</u>			R731 R732	1-216-105-00 1-216-081-00	METAL CHIP METAL CHIP	220K 22K	5% 5%	1/10W 1/10W	
D001	8-719-928-54	DIODE GL-450S			R733	1-216-025-00 1-216-025-00	METAL CHIP METAL CHIP	100 100	5% 5%	1/10W 1/10W	
*****	********	******	******	******	R735	1-216-083-00	METAL CHIP	27K	5%	1/10W	
	A-7070-025-A	MS-4 BOARD, COMPLE			R741 R742	1-216-105-00 1-216-081-00	METAL CHIP	220K 22K	5% 5%	1/10W 1/10W	
0002	1 162 020 00	CEDAMIC CHIR O IME		25V	R743 R744	1-216-025-00 1-216-025-00		100 100	5% 5%	1/10W 1/10W	
C902		CERAMIC CHIP 0.1MF PIN, CONNECTOR (HOO	K TYPE)	231	R745	1-216-083-00		27K	5%	1/10W	
****	******	*******	*****	*****	1		*****			•	****
		LS-9 BOARD									
		*****				*1-621-998-11	TE-6 BOARD				
		PIN, CONNECTOR (HOO				*3-716-845-01	HOLDER (LEFT), SENS	SOR		
*****	******	******	******	******		TRA	NSISTOR				
	*1-621-982-11	MJ-11 BOARD			Q001	8-729-904-10	PT360FS				
	CAI	PACITOR				SWI	TCH				
C725	1-124 462-00	ELECT 10MF	20%	16V	S904	1-570-112-11	SWITCH, LEAF				
C726 C731	1-124-462-00 1-124-462-00	ELECT 10MF	20% 20%	16V 16V	\$905		SWITCH, LEAF				
C732 C733	1-124-225-00		20% IF 10%	6.3V 50V	*****	*****	******	*****	****	******	*****
C734		CERAMIC CHIP 150PF	5%	507		*1-621-997-11	TE-5 BOARD				
C741 C742	1-124-462-00 1-124-225-00	ELECT 10MF	20% 20%	16V 6.3V		*3-716-844-01	HOLDER (RIGH	T). SEI	NSOR		
C743 C744	1-163-141-00	CERAMIC CHIP 0.001M CERAMIC CHIP 150PF		50V 50V			OT LAMP	.,			
0/44			J.0	701	PI DO1	1-518-621-11					
n1.0.1		DIODE PD2 7FSR2				1-518-621-21					

TC-3 LD-1 MS-4 LS-9 MJ-11 TE-6

When indicating part by reference number, ple≊e include the board name.

DIODE D101 8-719-109-60 DIODE RD2.7ESB2

TE-5 DL-15 DO-1 DT-63

Ref.No Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	RANSISTOR		CN104 CN105	*1-560-893-00 *1-560-891-00	PIN, CONNECTOR 5P PIN, CONNECTOR 3P	
Q001 8-729-904-1			CN106 CN107	*1-560-896-00 *1-560-893-00	PIN, CONNECTOR 8P PIN, CONNECTOR 5P	
	<u>WITCH</u> 1 SWITCH, LEAF		İ		PIN, CONNECTOR 3P	
	·**********	*****			PIN, CONNECTOR 6P	
		^^^^		DIC		
··1-621-993-1	1 DL-15 BOARD ********		D103 D104 D106	8-719-911-19	DIODE 1SS119 DIODE 1SS119 DIODE RD10ES-B1	
<u>D</u>	IODE		D107 D108	8-71 9 -200 - 02	DIODE 10E2	
D001 A.8-719-109-50 D301 A.8-719-500 3	DIODE RD2.0ESB1 DIODE D3SB10		D109	8-719-200-02 8-719-110-42	DIODE RD15ES-B3	
<u>I</u> (D110 D111	8-719-109-93 8-719-107-94	DIODE RD6.2ES-B2	
IC001 8-759-803-56			D112 D114	8-719-115-21	DIODE RD39JSB DIODE RD6.8ES-B3	
<u>T</u>	RANSISTOR		D115	8-719-110-42	DIODE RD15ES83	
Q001 8-729-900-80	TRANSISTOR DTC114ES		D116 D117 D119	8-719-110-16 8-719-109-82 8-719-911-19	DIODE RD10ES-B1 DIODE RD4.7ES-B3	
<u>Rí</u>	SISTOR		1 1115			
R001 1-249-417-11	. CARBON 1K 5%	1/6W	DC101A		LINK	
***********	*******	******	PS102/j	<u>-</u> 1-532-605-00	LINK, IC (ICP-N5) LINK, IC (ICP-N10)	
*1-621-992-11	. DO-1 BOARD *******		PS103/	\$1-532-686-00 \$1-532-727-11	LINK, IC (ICP-F75) LINK, IC (ICP-N5)	
TF	ANSISTOR			TRA	NSISTOR	
	TRANSISTOR 2SC3851-0 TRANSISTOR 2SB1133-R		Q103 Q106 Q107	8-729-177-32	TRANSISTOR 2SB734 TRANSISTOR 2SD773 TRANSISTOR 2SD773	
**********	********	******		RES	ISTOR	
*1-621-994-11	. DT-63 BOARD		R103 R104	1-249-421-11 1-249-421-11		
1-938-846-11	HARNESS (DD-12)		R105 R107	1-246-449-25 1-249-425-11	CARBON 100	5% 1/4W
CA	PACITOR		R108	1-249-434-11	CARBON 27K	5% 1/6W
C102 1-126-175-11 C103 1-123-334-00	ELECT 220MF	20% 25V 20% 25V	R109 R111 R112	1-249-441-11 1-249-431-11 1-249-422-11		5% 1/6W
C104 1-123-332-00 C105 1-123-332-00 C110 1-125-447-11		20% 16V 20% 16V 5.5V	R113	1-249-416-11	CARBON 820	5% 1/6W
C111 1-123-387-00		20% 100 V				
C112 1-123-387-00 C114 1-106-212-00	ELECT 47MF	20% 100 v				
C115 1-123-334-00	ELECT 220MF	10% 100V 20% 25V				
<u>cc</u>	NNECTOR		!			
CN102 *1-560-893-00	PIN, CONNECTOR 5P		!			

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
		CELLANEOUS ********	
C901	1-464-784-11 1-464-785-11 A.1-534-817-XX 1-535-535-11 *1-555-110-00 1-161-057-00	TERMÍNAL, SHAFT GROUND CABLE, PIN CAP, CERAMIC 0.033MF X C901	
M903 M904 M905 M906	8-835-247-01		TE)
S901 S902	⚠ 1-454-377-31 1-554-942-11 1-554-942-11 ⚠.1-448-836-11	SWITCH, PUSH (RECOG L)	

ACCESSORIES AND PACKING MATERIALS

Part No.	Description	Remark
A-6767-420-A 1-534-049-31 1-551-513-00	•	
	SHEET, PROTECTION	
*3-713-465-01 *3-713-487-01 *3-713-605-01	CUSHION (LOWER) LID, ACCESSORY CASE INDIVIDUAL CARTON (WG MODEL) INDIVIDUAL CARTON (AEP MODEL) MANUAL, INSTRUCTION (ENGLISH)	
3-765-626-41	MANUAL, INSTRUCTION (FRENCH, GERMANS, DUTCH)	
3-765-626-51	MANUAL, INSTRUCTION (SPANISH, SWEDISH, ITALIAN)	
X-3711-986-1	INSULATOR ASSY	

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

SECTION 7 MECHANISM ADJUSTMENT

7-1. MECHANICAL CHECK, ADJUSTMENT AND PREPARATIONS FOR REPLACEMENT

Note: Regarding the removal procedures of the cabinet and board, see Section 2.

7-1-1. Cassette Compartment Assembly And Operation Without Tape Inserted

Note: The set will not operate if there is a strong light source near it.

1. Method to loading (See Fig. 7-1)

- 1) Remove the front panel and covers (upper, lower) according to item Section 2, 2-1 and 2-2.
- 2) Connect a power supply and press the power button to turn on.
- 3) Press the EJECT button.
- 4) Disconnect power supply.
- 5) According to item Section 2, 2-14, remove the cassette compartment assembly.
- 6) Place tape over the pin coming out of the push switch 1.
- 7) Place a cap 2 over the LED assembly.
- 8) Press the lock holder 3 in the direction of arrow 4.
- 9) Short-circuit the leaf switch 1 by clip 5, etc.
- 10) Connect power supply and press the power button to turn on.

2. Putting into Playback State (See Fig. 7-1)

- 1) Perform the loading procedure in 1.
- 2) Place the rubber band 6 as shown between S reel and T reel sides.
- 3) Press the playback button, and when the Treel side starts to rotate, press the tension regulator arm assembly in the direction of arrow (3). (At this time, the tension regulator band is released and the S reel side rotates.)
- 4) Press the stop button to stop.

3. Putting into Recording State (See Fig. 7-1)

- 1) Perform the loading procedure in 1.
- 2) Place a rubber band **6** as shown between the S reel and T reels.
- 3) Press the recording button, and when the Treel side starts to rotate, push the tension regulator arm assembly in the direction of arrow (3). (At this time, the tension regulator band is released and the S reel side rotates.)
- 4) Press the stop button to stop.

4. Eject

1) Press the EJECT button.

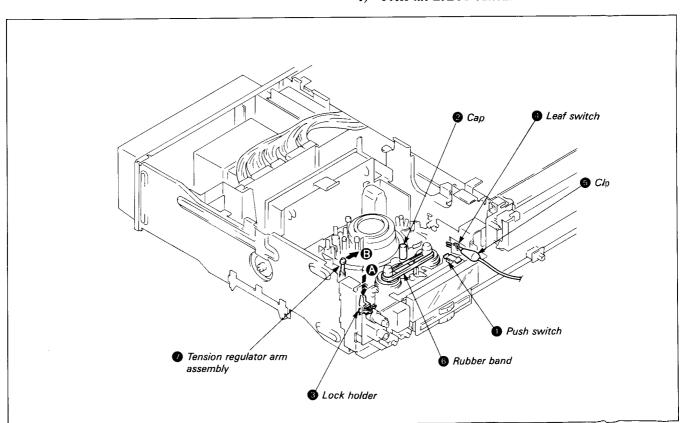


Fig. 7-1.

7-1-2. Handling of Mode Selector

1. Location of parts (External view)

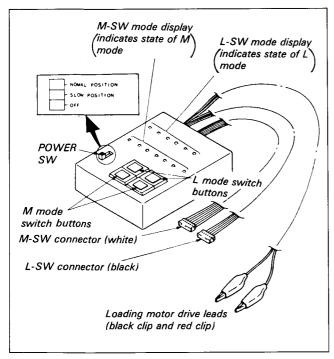


Fig. 7-2.

2. Connection (See Fig. 7-3.)

- 1) Remove the front panel and covers (upper, lower) according to item Section 2, 2-1 and 2-2.
- 2) According to item Section 2, 2-14, remove the cassette compartment assembly.
- 3) Remove the MS-4 board and LS-9 board connectors.
- 4) Insert the M-SW connector (6P connector, 6 harness, white) 1 into the set MS-4 board.
- 5) Insert the L-SW connector (6P connector, 4 harness, black) 2 into the set LS-9 board.
- 6) Connect the loading motor drive lead 3 red lead side to the loading motor red clip and the brown lead to the black clip.

3. Caution

- 1) When operating L-SW, be sure to set the M-SW mode to LOADING/UNLOADING.
- 2) When operating M-SW, be sure to set the L-SW mode to TOP or END.

4. Handling

BLANK lights up regardless of L MODE or M MODE when it is in neither mode during select.

1) L MODE

- When the L mode switch button right side is pressed continuously, the display lights up from LOADING TOP → LOADING END, in order from left to right.
- To go from LOADING END → LOADING TOP, press the left button continuously until the desired MODE is reached.
- In slow position, the L mode operates more slowly than for normal position.

2) M MODE

- Set L-SW to LOADING TOP before performing EJECT.
- Set L-SW to LOADING END to perform FF/REW → RVS or RVS → FF/REW.
- When the right M MODE switch button is pressed continuously, the display lights up from EJECT → RVS in order from left to right.
- To go from RVS → EJECT, press the left side switch button continuously until the desired MODE is reached.

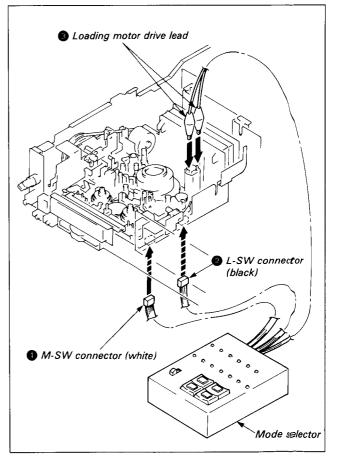
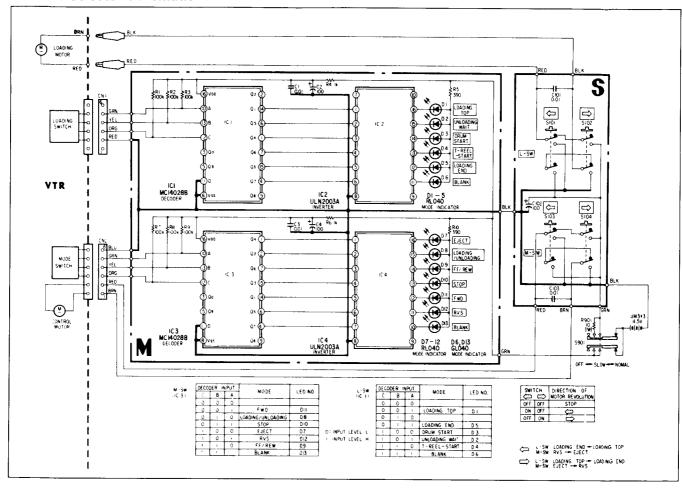


Fig. 7-3.

5. Mode Selector Schematic



6. Mode Selector Parts List

Symbol	Part No.	Part Name			Symbol	Part No.	Part Name		
capacitors							IC		
C1	1-108-579-00	mylar	$0.01 \mu F$	50V	IC1	8-759-240-28 IC	TC4028BP		
C2	1-123-333-00	electrolytic	100μF	24V	IC2	8-759-120-03	IC	μPA20	03A
C3	1-108-579-00	mylar	$0.01 \mu F$	50V	IC3	8-759-240-28	IC	TC4028BP	
C4	1-123-333-00	electrolytic	$100 \mu F$	24V	IC4	8-759-120-03	IC	μPA2003.A	
C101	1-108-579-00	mylar	$0.01 \mu F$	50V				•	
C102	1-123-333-00	electrolytic	100μF	24V			resistor		
C103	1-108-579-00	mylar	$0.01 \mu F$	50V	R1	1-247-179-00	carbon	100K	1 /4W
					R2	1-247-179-00	carbon	100K	1 /4W
		Diodes			R3	1-247-179-00	carbon	100K	1 /4W
D1	8-179-812-31	diode	RL040		R4	1-247-131-00	carbon	1K	1 /4W
D2	8-179-812-31	diode	RL040		R5	1-247-121-00	carbon	390	1 /4W
D3	8-179-812-31	diode	RL040						
D4	8-179-812-31	diode	RL040		R6	1-247-131-00	carbon	1K	1 /4W
D5	8-179-812-31	diode	RL040		R7	1-247-179-00	carbon	100K	1 /4W
					R8	1-247-179-00	carbon	100K	1 /4W
D6	8-719-812-33	diode	GL040		R9	1-247-179-00	carbon	100K	1 /4W
D7	8-179-812-31	diode	RL040		R10	1-247-121-00	carbon	390	1 /4W
D8	8-179-812-31	diode	RL040						
D9	8-179-812-31	diode	RL040		R901	1-214-594-00	metal film	10	1 * W
D10	8-179-812-31	diode	RL040						
_									
D11	8-179-812-31	diode	RL040						
D12	8-179-812-31	diode	RL040						
D13	8-719-812-33	diode	GL040						

7-2. PERIODIC CHECK AND MAINTENANCE

Please perform the following periodic checks and maintenance in order to obtain optimum set function and performance, and to keep the mechanism and tape in good condition. Also, perform the maintenance below after repair, regardless of the length of time the set has been used by the user.

7-2-1. Cleaning of Rotary Drum Assembly

 Press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref. No. J-1) lightly against the rotary drum assembly, and slowly rotate the rotary upper drum assembly counterclockwise by finger to clean.

Note: Do not use the power supply to rotate the motor, and do not rotate the drum clockwise by finger.

Also, there is a danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip, so please follow the instruction above for cleaning.

7-2-2. Cleaning of Tape Path (See Fig. 7-4)

 Place the cassette compartment assembly in EJECT state, and clean the tape path (No. 1 ~ No. 11 guides, capstan shaft, pinch roller) with a chamois cloth soaked in cleaning fluid.

7-2-3. Cleaning of Drive System

1) Clean the drive system (timing belt, surface of reel tables) with a chamois cloth soaked in cleaning fluid.

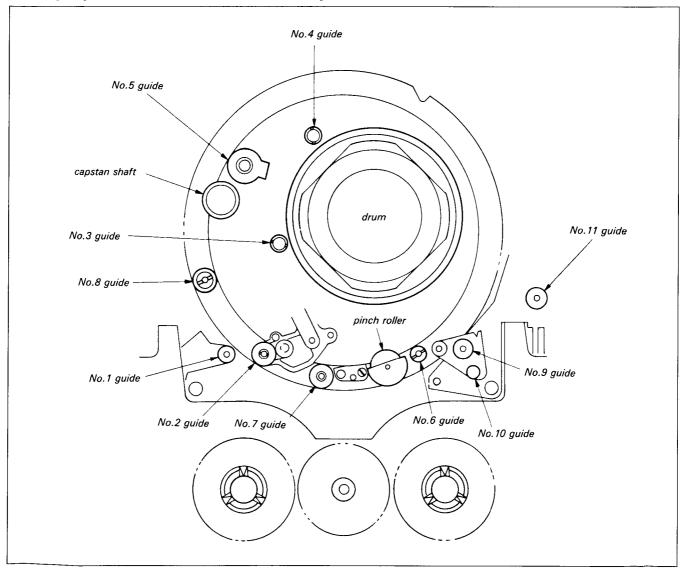


Fig. 7-4.

7-2-4. Periodic Check

Perform following according to number of hours of use.

							OCI	eanning	© O ∶	iling	★ Repla	cement ☆ Checking
Location		Hours of Use (H)										
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Notes
Tape Path	Cleaning of tape path surface	0	0	0	0	0	0	0	0	0	0	Be careful of oil
	Cleaning and degaussing of rotary drum assembly	0	0	0	0	0	0	0	0	0	0	Be careful of oil
	L motor belt	0	0	0	0	0	0	0	*	0	0	3-686-546-01 Replace here, or every two years.
	Plunger solenoid	_	_		0	_		_	0	-		1-454-377-31
e System	Capstan shaft bearing	_	0	_	0	_	0	_	0		0	Be careful not to get oil on the tape path surface.
Drive	Loading motor	_	☆		☆	_	☆	_	☆	<u> </u>	☆	A-7040-065-A
"	Control motor	_	☆		☆	_	☆	_	☆	<u> </u>	☆	8-835-110-01
	LS motor belt	0	0	0	0	0	0	0	*		0	3-713-670-01
	LS motor	_	☆		☆	-	☆	_	☆	_	☆	A-7090-661-A
	Reel motor	_	☆		☆	_	☆		☆	_	☆	A-7040-066-A
Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
nce Ch	Back tension measurement	_	☆	-	ជ		攻		ជ	_	☆	
THI	Brake system	_	☆	_	☆	_	☆	_	☆	_	☆	
Performance	FWD, RVS torque measurement		☆	_	☆	_	☆	_	☆		☆	

Note: When performing an overhaul, refer to the items above when replacing parts.

Note: Sony Oil

- Be sure to use Sony Oil. (There is a danger of trouble occurring if a different viscosity is used.)
 Sony Oil: Parts No. 7-661-018-01 (Mitsubishi Diamond oil Hydrofluid EP56)
- Be sure to use clean oil when lubricating the shaft bearing, because there is a danger of wear and burning if dirty oil is used.
- One drop of oil means the amount which sticks to a 2mm diameter rod, as shown in Fig. 7-5.

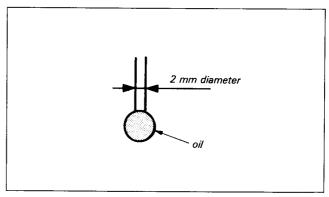


Fig. 7-5.

7-2-5. Service Jig Table

Ref. No.	Name	Part No.	Jig	Use, Notes
J-1	Cleaning fluid	Y-2031-001-1		
J-2	Chamois cloth	2-034-697-00		-
J-3	Head degausser	Commercially sold		
J-4	Small adjustment mirror, spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape (WR5-1C)	8-967-995-06		Tape path
J-6	Dial tension gauge	J-6080-827-A		torque measurement
J-7	Tension measurement reel	J-6080-831-A		with $\phi 30$ tape
J-8	Tension measurement reel	J-6080-832-A		with ϕ 16 string
J-9	No. 10 gear phase jig	J-6080-823-A	GD-2047	
J-10	Rotary drum jig	(packed with the rep	air rotary upper d	rum)
J-11	No. 6 guide lock jig	J-6080-826-A		
J-12	FWD, RVS take-up torque cassette	J-6080-824-A	GD-2089	
J-13	Mode selector	J-6080-825-A		for all models
J-14	TRACK SHIFT & MONITOR JIG	J-6080-851-A		Tape path
J-15	RF/SWP connector	J-6080-883-A		Tape path
J-16	CTL connector	J-6080-884-A		Tape path

Other equipment: Oscilloscope

Analog tester (20k Ω)

Analog tester			
J-1	J-2	J-3	J-4
J-5	J-6	J-7	J-8
J-9	J-10 (Packed with repair use rotary upper drum)	J-11	J-12
J-13	J-14	J-15	J-16

7-3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note: Use the mode selector (Ref. No. J-13) for this mechanical check, adjustment and replacement.

The mode inside the _____ is the mode set by pressing the mode selector button.

7-3-1. S Reel Table Assembly (See Fig. 7-6.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Set to FF/REW mode.
- 3) Remove screw 1 and reel table stopper 2.
- 4) Remove the S reel table assembly 3.

Note: Be sure to hold the upper reel hook when removing.

- 1) Place a half drop of oil on the spindle 4 upper surface.
- Move the S main brake assembly, s in the direction of arrow.
- 3) Mount the S reel table assembly 3, being careful not to hit the tension regulator band assembly 6.
- 4) Mount the reel table stopper 2 and tighten with screw .
- 5) Set to LOADING/UNLOADING mode.
- 6) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

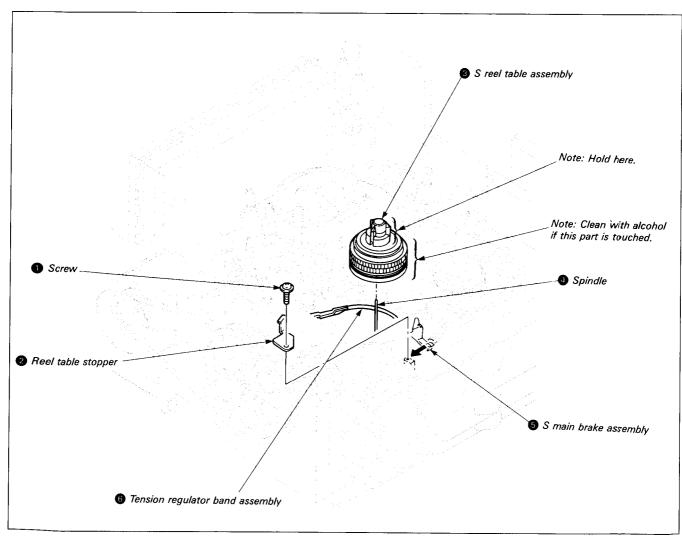


Fig. 7-6.

7-3-2. T Reel Table Assembly (See Fig. 7-7.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Set to UNLOADING WAIT mode.
- 3) Place the spring ② on the T.S brake assembly ① on the hook on the lock slider assembly.
- 4) Remove the stopper washer 3 and the T soft brake assembly 1.
- 5) Set to EJECT mode.
- 6) Move drive gear (B) assembly 4 in the direction of arrow.
- 7) Remove T reel table assembly **5**.

Note: Be sure to hold the upper reel hook when removing.

- 1) Place a half drop of oil on the spindle 6 upper surface.
- 2) Move the drive gear (B) assembly 4 in the direction of arrow. (Check EJECT mode.)
- 3) Mount the T reel table assembly 5.
- 4) Mount the T soft brake assembly 1 and the stopper washer 3.
- 5) Place the spring 2 on the T.S brake assembly 1 hook.
- 6) Set to LOADING TOP, LOADING/UNLOADING mode.
- 7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

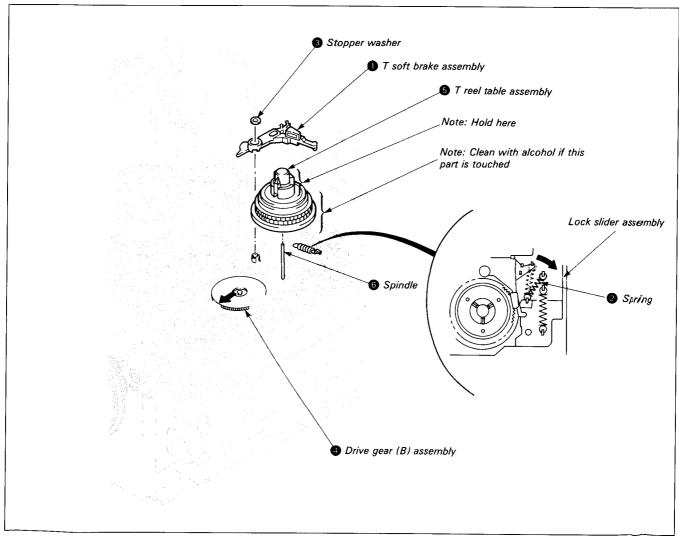


Fig. 7-7.

7-3-3. Pinch Press Arm Assembly (See Fig. 7-8)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Place the spring 1 on the pinch press arm assembly 2.
- 3) Remove the stopper washer 3 and the pinch press arm assembly 2.

- 1) Place a half drop of oil on shaft 4.
- 2) Mount the pinch press arm assembly 2 and the stopper washer 3.
- 3) Place the spring 1 on the tension regulator spring hook assembly 5.
- 4) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

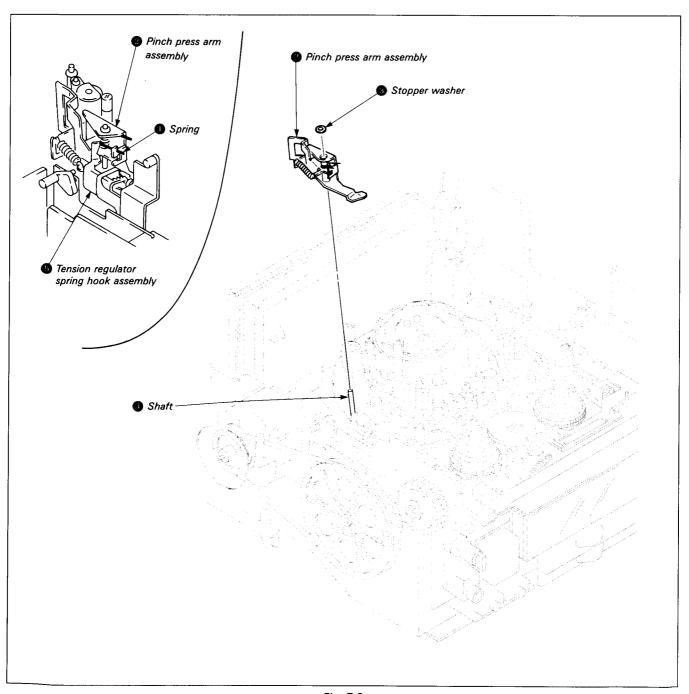


Fig. 7-8.

7-3-4. Tension Regulator Arm Assembly (See Fig. 7-9.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- Remove the mechanism as described in item Section 2, 2-15.
- 3) Remove the LS motor belt 1.
- 4) Remove the Four screws 2, and then move the Front base 3 in the direction of arrow.
- 5) Change the spring position as described in 7-3-3. 1. Removal, 2). (See Fig. 7-8.)
- 6) Remove tension spring **1**. (Note its position.)
- 7) Remove screw 5 and the tension regulator spring hook assembly 6.
- 8) Set to FF/REW mode.
- 9) Remove the tension regulator band assembly hook .
- 10) Remove the tension regulator arm assembly 3.

- 1) Place a half drop of oil on the spindle 9.
- 2) Mount the tension regulator arm assembly (3), placing the tension regulator load arm assembly pin (6) in the tension regulator arm assembly (8) cam groove (on the back).
- 3) Mount the tension regulator band assembly hook **1**. (Do not touch the band or change its shape.)
- 4) Set to LOADING/UNLOADING mode.
- 5) Mount the tension regulator spring hook assembly 6 and tighten with screw 5.
- 6) Replace tension spring 1 in its original position and lock the screws.
- 7) Position the spring according to item 7-3-3, 2. Mounting, 3). (See Fig. 7-8.)
- 8) Mount the Front base 3, and then tighten with four screws 2.
- 9) Mount the LS motor belt 1.
- 10) Mount the mechanism by following the procedure in Section 2, 2-15. in reverse.
- 11) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

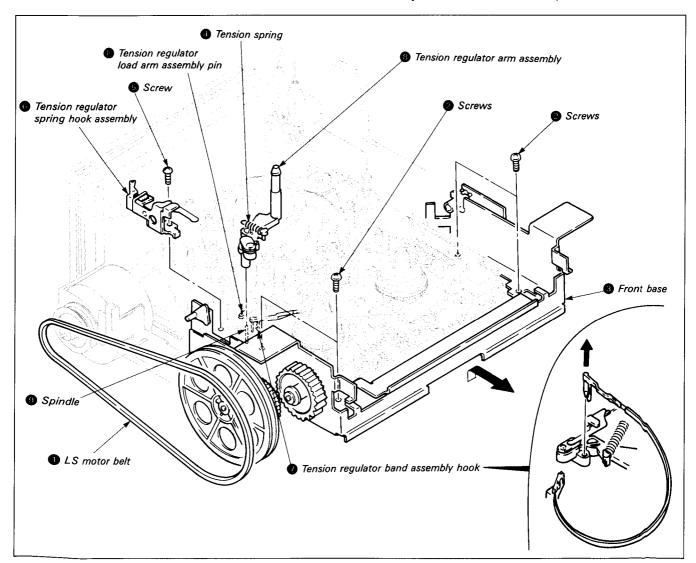


Fig. 7-9.

7-3-5. Tension Regulator Band Assembly (See Fig. 7-10.)

1. Removal

- Remove the S reel table assembly according to item 7-3-1,
 Removal. (See Fig. 7-6.)
- 2) Remove the band arm hook 1.
- 3) Remove hook 2 and the tension regulator band assembly

- 1) Mount the tension regulator band assembly 3. (Do not touch the band or change its shape.)
- 2) Fit on the band arm hook 1.
- 3) Mount the S reel table assembly according to 7-3-1, 2. Mounting. (See Fig. 7-6.)
- 4) Perform 7-3-21. FWD Back Tension Adjustment.

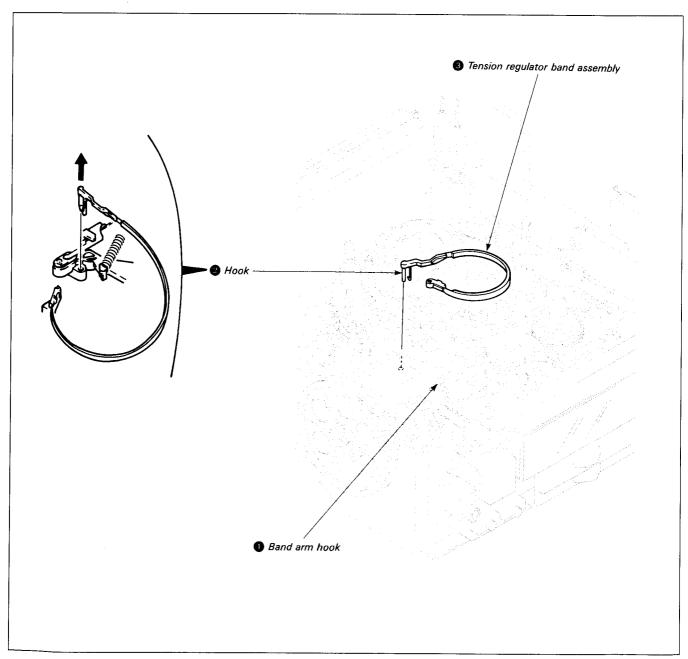


Fig. 7-10.

7-3-6. Loading Motor Assembly (See Fig. 7-11.)

1. Removal

- 1) Connect a power supply and press the push button to turn on.
- 2) Press the EJECT button.

Note: Disconnect the power supply after being set to EJECT state.

- 3) Open the SP-2 board 1 according to item Section 2, 2-6.
- 4) Remove connector 2 from SP-2 board 1.
- 5) Remove L motor belt 3.
- 6) Remove the two screws 4.
- 7) Remove the claw **5** and the loading motor assembly **6**.

- 1) Mount the loading motor assembly 6 and tighten the two screws 4.
- 2) Mount L motor belt 3.
- 3) Connect connector 2 to SP-2 board 1. (See Fig. 3-6)
 - Mount SP-2 board by following the procedure in item Section 2, 2-6. in reverse.

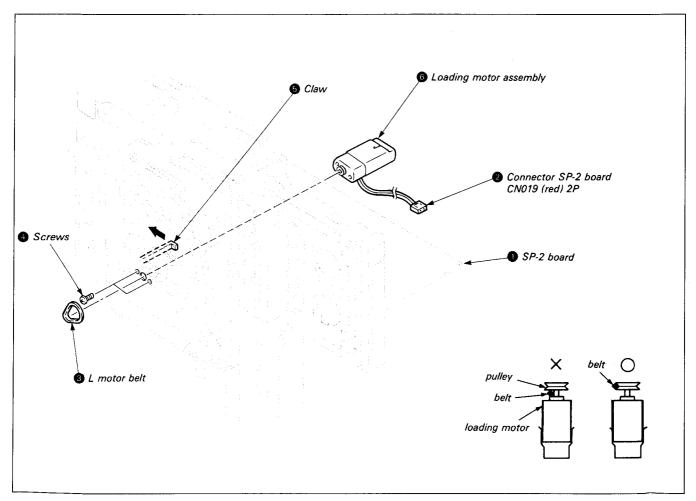


Fig. 7-11.

7-3-7. Loading Ring Assembly (See Fig. 7-12, 13.)

1. Removal

- Remove the mechanism as described in item Section 2, 2-15.
- 2) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 3) Operate the mode selector, and move the guide base assembly 1 until just before lock, and the entrance guide assembly 2 until just before lock where the ring stopper
 3 screw is visible. (Do not move loading ring assembly 1.)
- 4) Remove the stopper washer **4** and remove No. 10 gear assembly **5**.
- Remove screw 6 and the roller retainer and ring roller8.
- 6) Remove the two screws **9** and the ring stopper **3** and ring roller **10**.
- 7) Remove the loading ring assembly **1** as shown by arrow. (See Fig. 7-12.)

Note: Be careful that the loading ring assembly **10** does not touch the drum when it is removed.

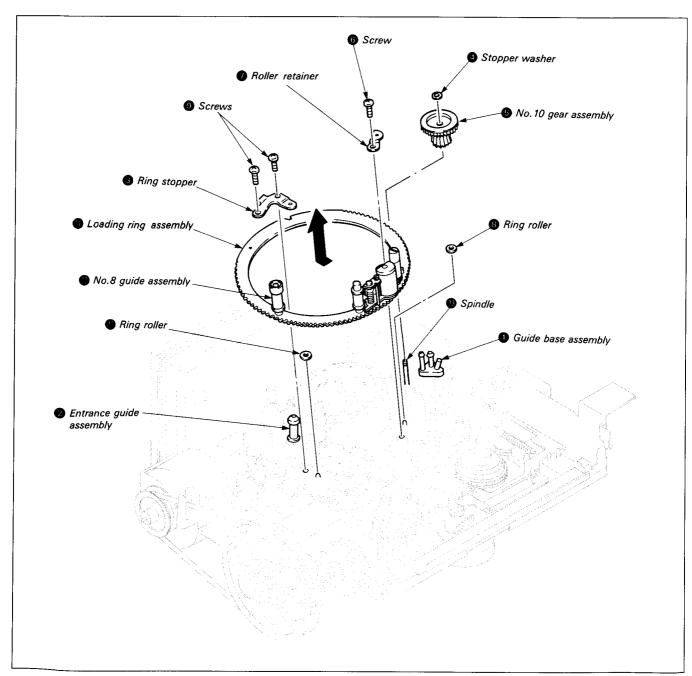


Fig. 7-12.

2. Mounting

- 1) Mount the loading ring assembly **1** so that it is in unthreaded state (pinch roller arm assembly is on the front panel side). (Check that is in the state in step 3) under Removal.)
- 2) Mount the ring roller 10 and ring stopper 30 and tighten with the two screws 30. (No. 8 guide assembly 10 should be closer to the front panel than the ring stopper 30.)
- 3) Mount the ring roller 3 and roller retainer 2 and tighten with screw 6. (Check that the loading ring assembly matches the three ring spacers.)
- 4) Place a half drop of oil on the spindle . (See Fig. 7-12.)
- 5) Check that the protrusions on the drive changer assembly are in the indentations of the L-SW assembly and insert the No. 10 gear phase jig (Ref. No. J-9). (See Fig. 7-13.)

- 6) Mount No. 10 gear assembly 5 and stopper washer 4 while pushing the No. 8 guide assembly 2 against the ring stopper 3.
- 7) Pull out the No. 10 gear phase jig.
- 8) Set to LOADING TOP mode. (See Fig. 7-12.)
- 9) Mount the mechanism by following the procedure in Section 2, 2-15. in reverse.
- 10) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

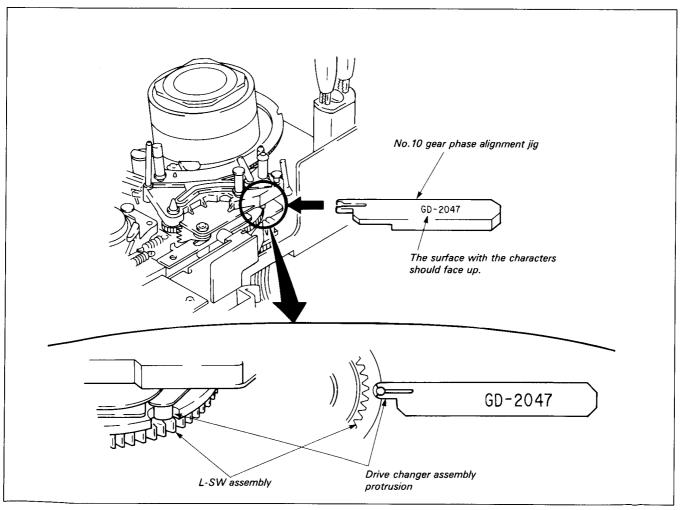
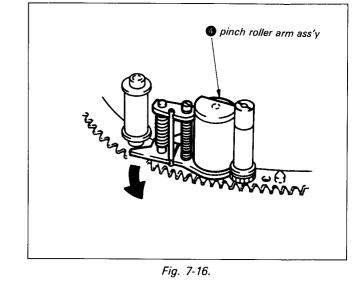


Fig. 7-13.

7-3-8. Pinch Roller Assembly (See Fig. 7-14. ~ 25.)

1. Removal

- Remove the loading ring assembly as described in 7-3-7.,
 Removal. (See Fig. 7-12.)
- 2) Remove stopper washer ①. (See Fig. 7-14.)
- 3) Change the position of the torsion spring 3 on No. 7 guide assembly 2. (See Fig. 7-15.)
- 4) Rotate pinch roller arm assembly 4 in the direction of arrow. (See Fig. 7-16.)
- 5) Remove pinch roller arm assembly (1) in the direction of arrow. (See Fig. 7-17.)
- 6) Remove torsion spring 3. (See Fig. 7-18.)



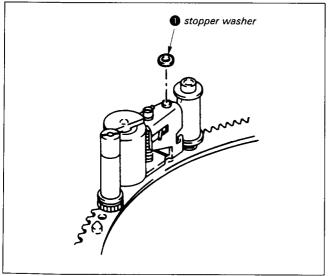


Fig. 7-14.

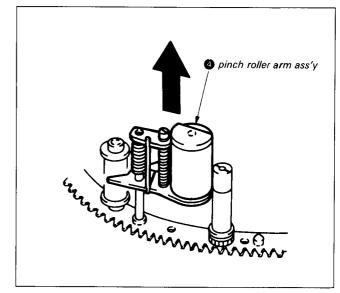


Fig. 7-17.

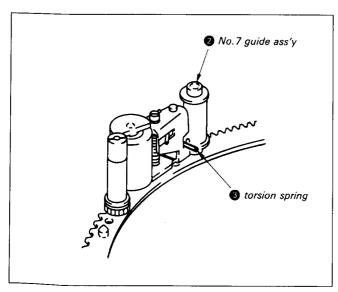


Fig. 7-15

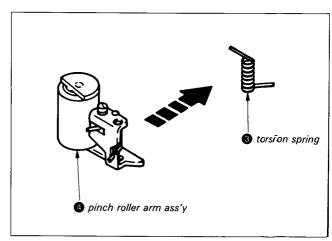


Fig. 7-18.

- 1) Position torsion spring 3. (See Fig. 7-19.)
- 2) Insert the end of a paper clip 5 or other thin rod inside the pinch roller arm assembly hole 6. (See Fig. 7-20, 7-21.)
- 3) Push the end of the clip 5 through to contact the loading ring assembly shaft 7 and mount the pinch roller arm assembly 4. (See Fig. 7-22, 7-23.)
- 4) Place the spring on No. 7 guide assembly 2. At this time, check that the spring is hooked on section (a). (See Fig. 7-24.)
- 5) Mount the stopper washer 1. (See Fig. 7-25.)
- 6) Mount the loading ring assembly according to 7-3-7., 2. Mounting. (See Fig. 7-12, 7-13)

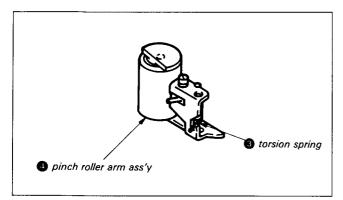


Fig. 7-19.

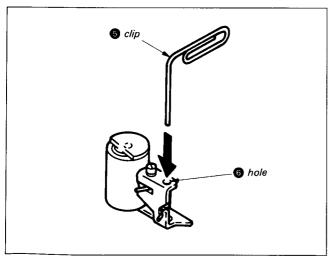


Fig. 7-20.

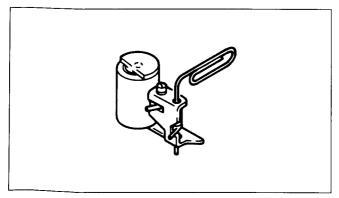


Fig. 7-21.

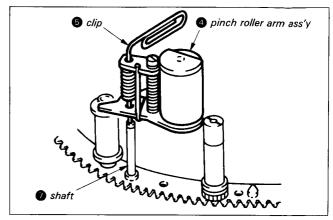


Fig. 7-22.

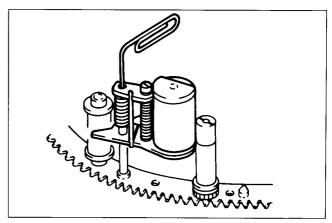


Fig. 7-23.

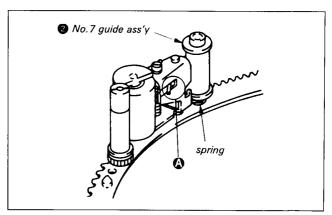


Fig. 7-24.

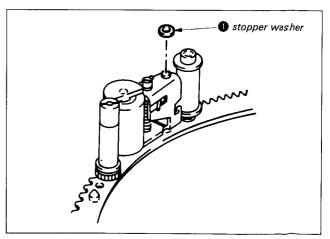


Fig. 7-25.

7-3-9. Slant Guide Assembly (See Fig. 7-26 ~ 28.)

1. Removal

- 1) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Remove screw 1 and E ring 2.
- 3) Remove the slant guide assembly 3. (See Fig. 7-26.)

2. Mounting

1) Operate the mode selector, and line up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 7-27.)

2) Set the slant guide assembly guide base assembly in unthreaded state (guide base assembly is on front panel side) and mount. (See Fig. 7-28.)

Note: At this time, confirm the engagement position of the slant guide drive gear and L slider assembly gear. (See Fig. 7-32.)

- 3) Mount the E ring 2 and tighten screw 1. (See Fig. 7-26.)
- 4) Put in the state in 7-3-7., 1. Removal, 3).
- 5) Mount the loading ring assembly according to 7-3-7., 2. Mounting (See Fig. 7-12, 7-13.)

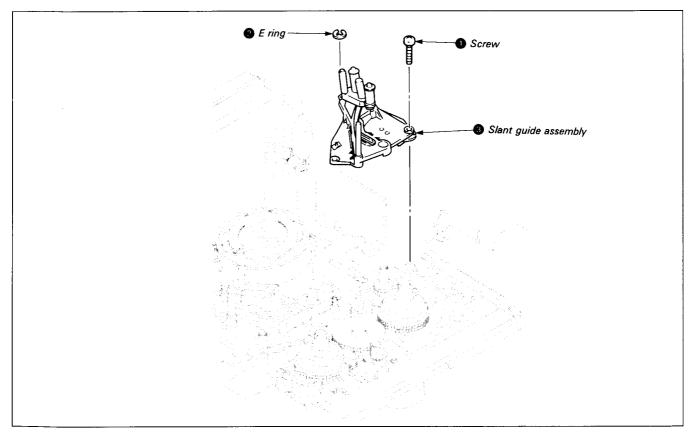


Fig. 7-26.

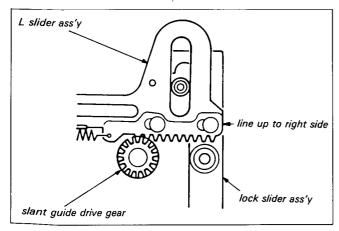


Fig. 7-27.

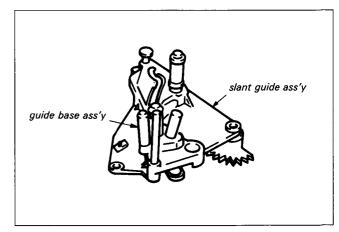


Fig. 7-28.

7-3-10. Entrance Guide (P) Assembly (No. 2 Guide Assembly) (See Fig. 7-29.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Turn the rotary upper drum counterclockwise and separate the head portion from the entrance guide (P) assembly 1.
- 3) Remove the two screws 2.
- 4) Remove No. 3 guide nut 3, and remove guide flange 1, guide 5 and compression spring 6.
- 5) Remove the entrance guide assembly 1.

2. Mounting

- 1) Engage the entrance guide (P) assembly and L slider assembly so that the part without teeth (a) on the bottom of the entrance guide (P) assembly and the part without teeth (b) on the L slider assembly match.
- 2) Mount the compression spring 6, guide 5 and guide flange 6 in that order, then temporarily tighten the guide nut 6.
- 3) Tighten the two screws 2.
- 4) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

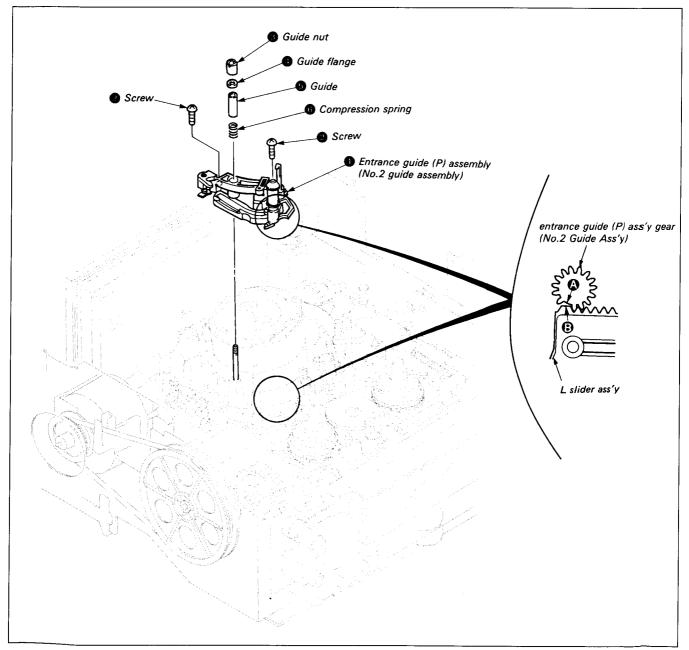


Fig. 7-29.

7-3-11. L Slider Assembly (See Fig. 7-30. ~32.)

1. Removal

- Remove the slant guide assembly according to 7-3-9., 1.
 Removal.
- 2) Remove the entrance guide (P) assembly according to 7-3-10., 1. Removal.
- 3) Set to DRUM START mode.
- 4) Remove slant guide drive gear 1.
- 5) Remove the tension regulator load arm assembly 2 pin from the cam groove of the tension regulator arm assembly. (Refer to 7-3-4. Tention Regulator Arm Assembly.)
- 6) Remove the two stopper washers 3.
- 7) Remove the L slider assembly 6 while pushing the RL arm assembly protrusion 4 in the direction of arrow.
- 8) Remove the stopper washer 6 and the tension regulator load arm assembly 2.

- 1) Lubricate the portions indicated in Fig. 7-31.
- 2) Mount the tension regulator load arm assembly 2 and the stopper washer 6.
- 3) Mount the L slider assembly 5 while pushing the RL arm assembly protrusion 4 in the direction of arrow.
- 4) Put the tension regulator load arm assembly 2 pin into the M slider groove. (Refer to 7-3-15. M slider)
- 5) Mount the two stopper washers 3.
- 6) Refer to 3-4, 2. Mounting, 2), and place the tension regulator load arm assembly 2 pin in the tension regulator arm assembly cam groove.
- 7) Operate the mode selector, and match up the right edge of the L slider assembly and the right edge of the lock slider assembly. (Refer to 7-3-9, 2. Mounting, 1)
- 8) Engage the slant guide drive gear so that the notch is 1 tooth away from the L slider assembly left side tooth. (See Fig. 7-32.)
- 9) Mount the entrance guide (P) assembly according to 7-3-10., 2. Mounting.
- 10) Mount the slant guide assembly according to 7-3-9., 2. Mounting.

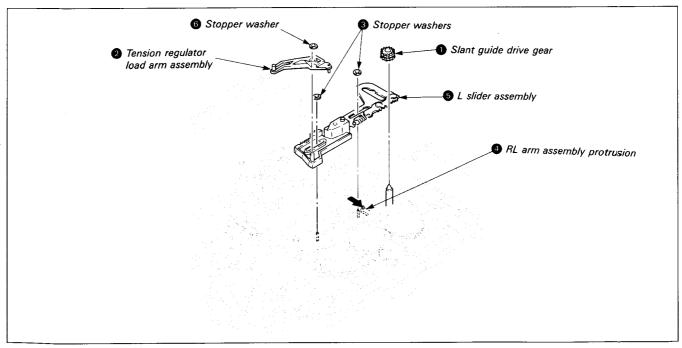


Fig. 7-30.

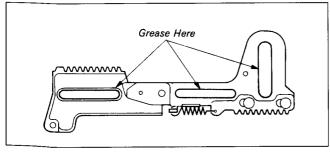


Fig. 7-31.

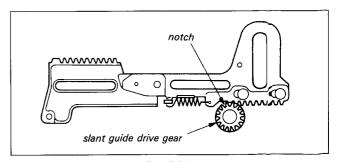


Fig. 7-32.

7-3-12. L-SW Assembly (See Fig. 7-33~35.)

1. Removal

- Remove the L slider assembly according to 7-3-11., 1. Removal.
- 2) Remove lock slider retainer 1.
- 3) Remove screw 2 and lock slider A 3.
- 4) Remove stopper washer 4 and torsion spring 5.
- 5) Remove drive changer assembly 6.
- 6) Remove connector **7**.
- 7) Remove the two screws 8 and the L-SW assembly 9.

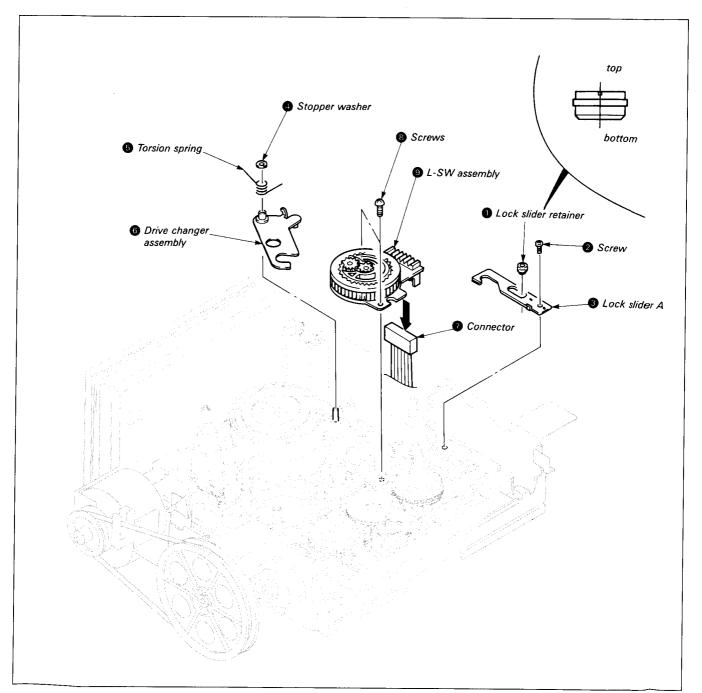


Fig. 7-33.

- 1) Place a half drop of oil on the L-SW assembly (1) spindle (planetary gear).
- Mount L-SW assembly and tighten with the two screws
- 3) Connect connector 7.
- 4) Operate the mode selector and check that the L-SW assembly 9 rotates.
- 5) Place a half drop of oil on spindle .
- Grease the drive change assembly 6 as shown in Fig. 7-34.
- 7) Mount the drive changer assembly 6.
- 8) Mount the torsion spring 6 and the stopper washer 6.
- 9) Operate the mode selector and check that the L-SW assembly 9 rotates.
- 10) Mount lock slider A 3 and tighten screw 2.
- 11) Mount lock slider retainer 1.
- Operate the mode selector and set to the position in Fig. 7-35.
- 13) Mount the L slider assembly according to 7-3-11., 2, Mounting.

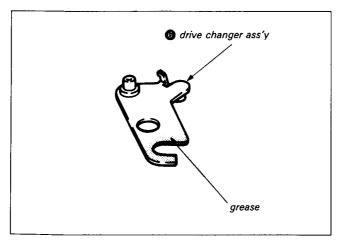


Fig. 7-34.

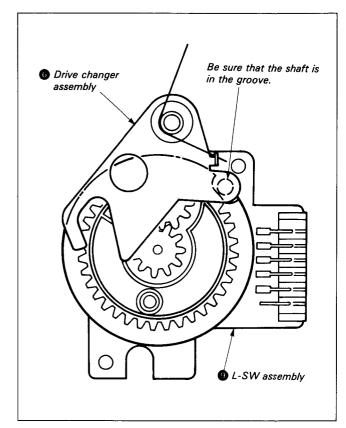


Fig. 7-35.

7-3-13. Plunger Solenoid (See Fig. 7-36.)

1. Removal

- 1) Open the SP-2 board according to Section 2, 2-6. and remove connector CN018 (white) 3P.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.
- 3) Remove tension spring 1.
- 4) Remove the two stopper washers 2.
- 5) Remove screw 3 and the lock slider B assembly 1.
- 6) Remove the two screws **9** and the plunger solenoid **6**. (At this time, be careful not to scratch the T reel assembly with the screwdriver, and do not touch it.)

- 1) Insert the plunger solenoid pin 2 into the P arm hole 3 and mount with the two screws 5. (Again, be careful not to scratch or touch the T reel assembly.)
- 2) Mount lock slider B assembly 1 and tighten screw 3.
- 3) Mount the two stopper washers 2.
- 4) Hook on the tension spring 1.
- 5) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.
- 6) Connect the CN018 connector (white) to the SP-2 board.
- 7) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.

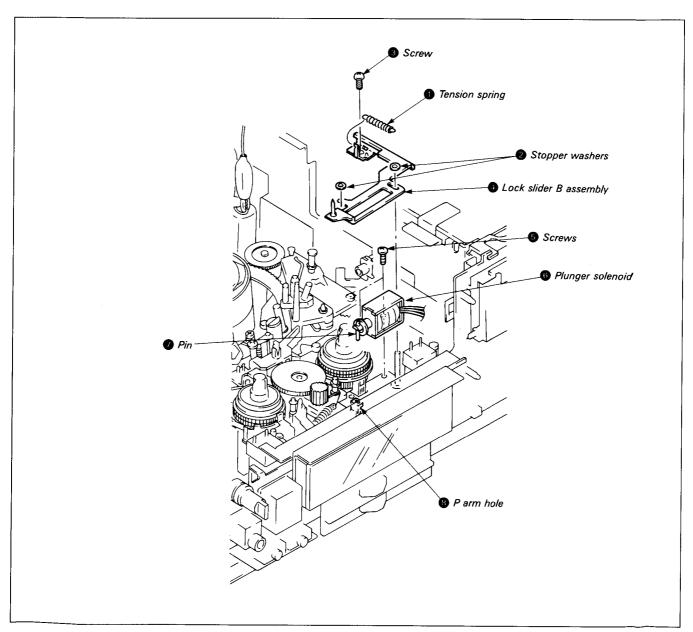


Fig. 7-36.

7-3-14. M-SW Assembly (See Fig. 7-37~39)

1. Removal

- 1) Remove the T reel assembly according to 7-3-2. (See Fig. 7-7.)
- 2) Remove stopper washer **1** and the drive gear (B) assembly **2**.
- 3) Remove the LD-1 board 3. (See Fig. 7-37.)
- 4) Remove lock slider B assembly according to 7-3-13., 1. Removal, 3), 4) and 5).
- 5) Remove tension spring 4 and B release arm 6.
- 6) Check EJECT mode.
- 7) Remove stopper washer 6 and the mode output gear 7.
- 8) Remove screw 8 and the push switch 9.
- 9) Remove connector 10.
- 10) Remove the three screws ①, the control motor cover ② and the M-SW assembly ③.
- 11) Remove solder (A) and remove the DC motor (B).

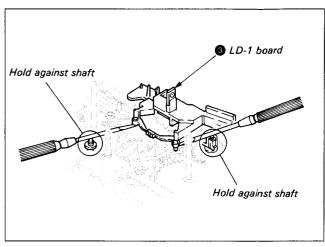


Fig. 7-37.

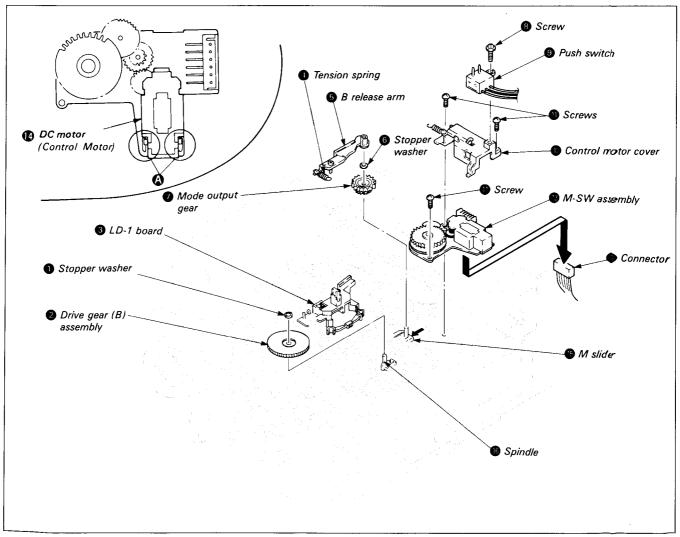


Fig. 7-38.

- 1) Solder the DC motor (Control Motor) 1.
- 2) Mount the M-SW assembly **1** and the control motor cover **1**, and tighten the three screws **1**.
- 3) Connect connector 10.
- 4) Mount push switch 9 and tighten screw 3.
- 5) Check EJECT mode.
- 6) Check that M slider 18 is moved fully in the direction of arrow 3.
- 7) Place a half drop of oil on spindle **(8)**. (See Fig. 7-38.)
- 8) Mount the mode output gear **7** so that the positioning holes are lined up. (See Fig. 7-39.)

- 9) Mount stopper washer 6
- 10) Set to LOADING/UNLOADING mode.
- 11) Mount B release arm 6 and tension spring 1.
- 12) Mount the lock slider B assembly according to 7-3-13., 2. Mounting, 2), 3) and 4).
- 13) Mount the LD-1 board 3.
- 14) Mount drive gear B assembly 2 and stopper washer 1.
- 15) Mount the T reel assembly according to 7-3-2., Mounting.

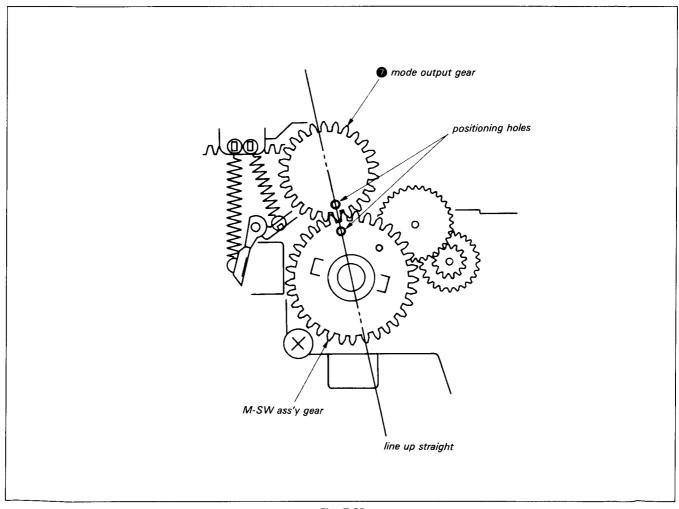


Fig. 7-39.

7-3-15. M Slider (See Fig. 7-40 ~43.)

1. Removal

- 1) Remove the pinch press arm assembly according to 7-3-3., 1. Removal. (See Fig. 7-8.)
- 2) Remove the tension regulator arm assembly according to 7-3-4., 1. Removal. (See Fig. 7-9.)
- 3) Remove the tension regulator band assembly according to 7-3-5., 1. Removal. (See Fig. 7-10.)
- 4) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 5) Perform 7-3-14., 1. Removal, Steps 1)~5). (See Fig. 7-37, 7-38.)
- 6) Remove the tension regulator load arm assembly according to 7-3-11., 1. Removal, 8). (See Fig. 7-30.)
- 7) Remove tension spring 1.
- 8) Remove the two stopper washers ② and remove the S main brake assembly ③ and T main brake assembly ①.
- Set to LOADING TOP , LOADING/UNLOADING mode.

- 10) Remove the screw 5 and the drive assembly 6.
- 11) Perform 7-3-14., 1. Removal, steps 6) and 7).
- 12) Remove the two tension springs **1**.
- 13) Remove REW brake assembly 8.
- 14) Remove stopper washer **9** and B release slider **0**.
- 15) Remove stopper washer **1** and ring lock spring **1** and RL arm **1**.
- 16) Move the M slider to the right (leave about 5 mm at the left.)
- 17) Remove the E ring (1) and the pinch press lever assembly (2).
- 18) Remove spring 18 and the hard brake (S) 18.
- 19) Remove stopper washer (19), push the mode arm (19) in the direction of arrow, and lift up the left side of the M slider (19) to remove.

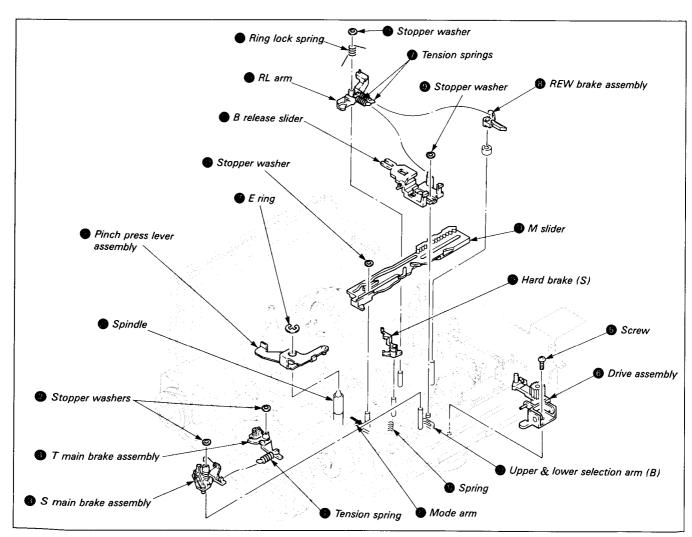


Fig. 7-40.

2. Mounting

- 1) Apply grease. (See Fig. 7-41.)
- 2) Push mode arm in the direction of arrow, and mount the M slider noticing the positioning of the other parts in Fig. 7-42. and mount the stopper washer.
- 3) Mount hard brake (S) and spring •.
- 4) Apply grease. (See Fig. 7-43.)
- 5) Apply a half drop of oil from the spindle groove to the bottom, mount the pinch press lever assembly and the E ring .
- 6) Mount RL arm (18), mount the ring lock spring (18) and the stopper washer (19).
- 7) Mount B release slider **1** and stopper washer **2**.
- 8) Mount REW brake assembly 83.
- 9) Mount the two tension springs .

Note: Mount the springs as follows, being careful not to mix them up.

- B release slider spring: total diameter 2 mm, wire diameter 0.18 mm
- REW brake assembly spring: total diameter 1.6 mm, wire diameter 0.12 mm
- 10) Push the M slider all the way to the left.
- 11) Perform 7-3-14., 2. Mounting, steps 7), 8) and 9).
- 12) Set to LOADING/UNLOADING mode.
- 13) Insert the drive assembly 6 horizontal shaft into the upper & lower selection arm (B) 6 groove, and mount with the screw 6.
- 14) Mount T main brake assembly and S main brake assembly Mount the two stopper washers and the tension spring •.
- 15) Mount the tension regulator load arm assembly according to 7-3-11., 2. Mounting, step 2).
- 16) Perform 7-3-14., 2. Mounting, steps 11) ~ 15).
- 17) Mount the loading ring assembly according to 7-3-7., 2. Mounting.
- 18) Mount the tension regulator band assembly according to 7-3-5., 2. Mounting.
- 19) Mount the tension regulator arm assembly according to 7-3-4., 2. Mounting.
- 20) Mount the pinch press arm assembly according to 7-3-3.,2. Mounting.

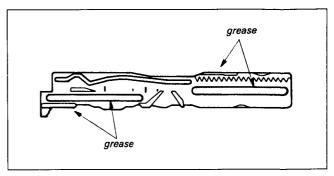


Fig. 7-41.

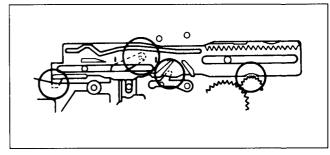


Fig. 7-42.

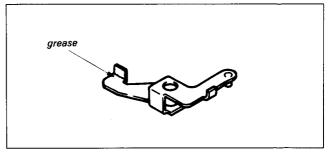


Fig. 7-43.

7-3-16. Capstan Motor (See Fig. 7-44.)

1. Removal

- 1) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Open the SP-2 board according to Section 2, 2-6.
- 3) Remove the connector **(CN212, white, 11P)** from SP-2 hoard
- 4) Remove the connector 2 (CN005, white, 4P) from RS-17 board.
- 5) Remove the two screws 3 and rotor retainer 4.
- Remove the two screws and remove the capstan motorin the direction of arrow.

- 1) Mount capstan motor 6 and tighten the two screws 5.
- 2) Mount the rotor retainer **4** and tighten the two screws **3**.
- 3) Connect connectors 1 and 2.
- 4) Mount the loading ring assembly according to 7-3-7., 2. Mounting. (See Fig. 7-12, 7-13.)
- 5) Mount the SP-2 board by performing the procedure in Section 2, 2-6. in reverse.

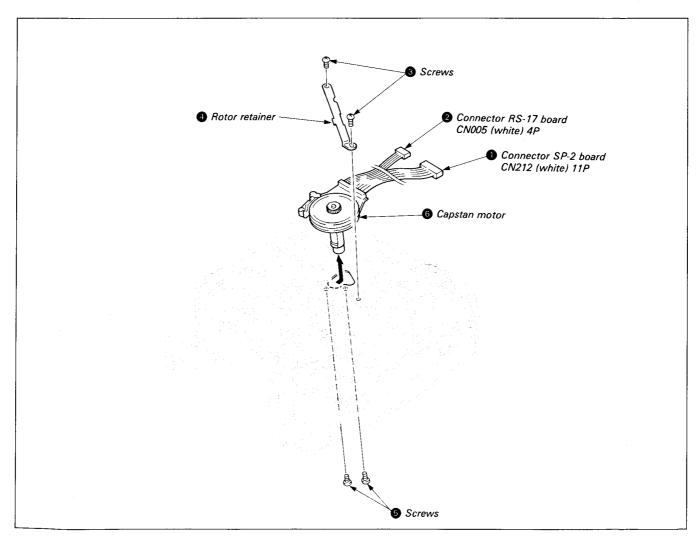


Fig. 7-44.

7-3-17. Rotary Upper Drum Replacement

1. Removal

- 1) Remove two hexagon socket screws (2×2.7) **1** and dismount the dynamic damper **2**. (See Fig. 7-45.)
- 2) Suction solder at all of the soldered eight positions (a). Check that the printed wiring board and pins jutting out from below freely moove using tweezers, or other tool. (See Fig. 7-45.)
- 3) Remove the two hexagon socket screws (2×5) 3. (See Fig. 7-45.)
- 4) Mount the dismounting Jig (3) with the accessory screws (4) utilizing the screw holes in which the dynamic damper was mounted.

Drive the hexagon socket screw 6 into the jig 6 and remove the rotary upper drum 6. (See Fig. 7-46.)

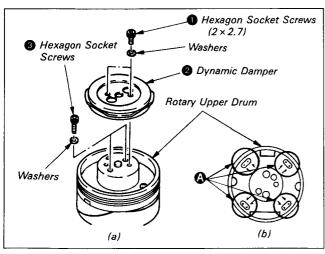


Fig. 7-45.

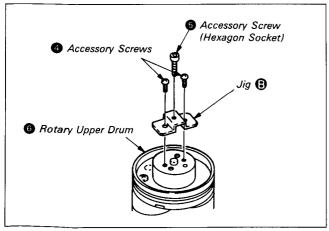


Fig. 7-46.

2. Mounting

Rotary Upper Drum Part No.
DGR-12-R A-7049-120-A

- Carefully clean the flange surfaces and planes of the rotary upper drum and visually check that no blemishes or flaws are left.
- 2) Insert Jig in the positioning hole so that the holes of the rotary upper drum and flange coincide. Lightly insert the rotary upper drum in the drum shaft while aligning their positions. (See Fig. 7-47.) (Check that pins are projecting above the holes on the printed circuit board of the rotary upper drum. When the pins are caught, correct using tweezers, etc.)
- 3) Remove Jig (a), lightly push the rotary upper drum by hands. If the rotary upper drum does not go in to the bottom, alternately tighten the two hexagon socket screws (2 × 5) (a) by hand and fix them temporarily. (See Fig. 7-45, 7-48.)
- 4) Reinsert the Jig (a) in the positioning hole (b) and check that the jig can be inserted smoothly. (When the jig cannot be inserted, loosen the two hexagon socket screws (2 × 5) (3) and slide it inserting a clock screw-driver in the hole.)
- 5) Tighten the two hexagon socket screws (2×5) 3.

Note: Do not tighten too strongly.

6) Solder the eight positions (See Fig. 7-45.)

Note: Be careful not to flow solder below the printed wiring board.

7) Tighten the two hexagon socket screws (2×2.7) **1** reversing the screw removal procedure and remount the dynamic damper **2**. (See Fig. 7-45.)

Note: Be careful not to tighten too strongly.

When mounting, be careful not to mix the hexagon socket screws (2×2.7) and hexagon socket screws (2×5) 3.

Note: After mounting, be sure to perform 7-4. Tape Path Adjustment.

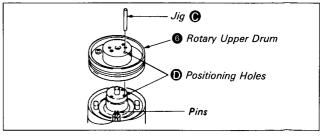


Fig. 7-47.

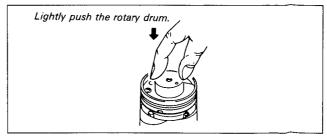


Fig. 7-48.

Notes on Drum Assembly and Rotary Upper Drum Mounting

- When mounting the drum assembly with a magnetized screwdriver, mount with the head tip in the position shown below to prevent it from being affected by the screwdriver.
- 2. Be sure to perform tape path adjustment after mounting.

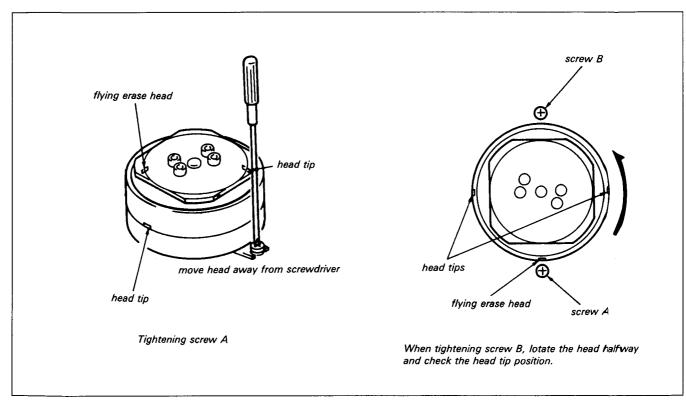


Fig. 7-49.

7-3-18. Replacement of Drum Assembly (See Fig. 7-50, 51)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Open the SP-2 board according to Section 2, 2-6.
- 3) Remove screw 1 and the shaft ground terminal 2. (See Fig. 7-50.)
- 4) Remove the three connectors 3.
- 5) Remove the two screws 4.
- 6) Remove the drum assembly **5**. (See Fig. 7-51.)

Note: At this time, be careful that the drum assembly does not hit No. 3 guide, etc.

2. Mounting

- 1) Mount drum assembly 6 and tighten the two screws 4.
- 2) Connect the three connectors 3.
- 3) Mount shaft ground terminal 2 and tighten screw 1.
- 4) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.
- 5) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

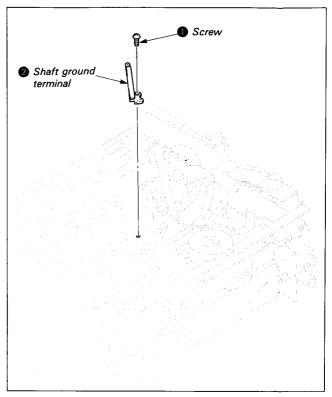


Fig. 7-50.

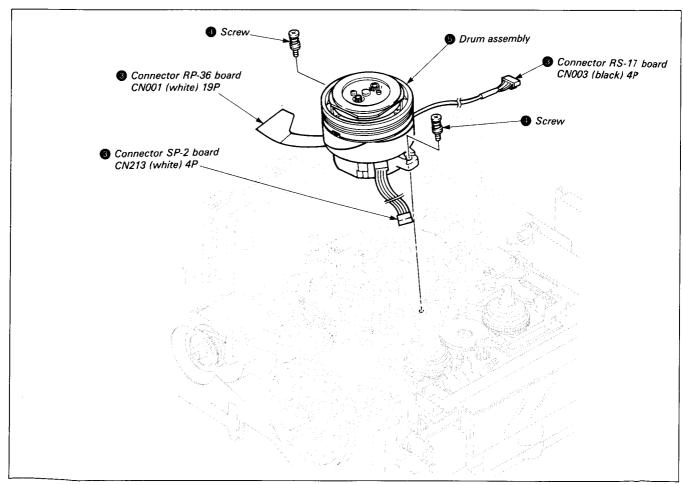


Fig. 7-51.

7-3-19. Adjustment After Replacement of No.3 Guide and No.4 Guide

For replacement of both No.3 and No.4 guides, line up the tape along the upper flange after replacing. (See Fig. 7-66.)

7-3-20. No.5 Guide Assembly (See Fig. 7-52.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Remove the three screws 1 and No.5 guide assembly.
- 3) Remove guide nut 2, compression spring 3 and No.5 guide roller assembly 4.

2. Mounting

- 1) Insert compression spring 3 into No.5 guide roller assembly 4, engage the bottom section and tighten guide nut 2.
- 2) Mount No.5 guide assembly and tighten the three screws 1.
- 3) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

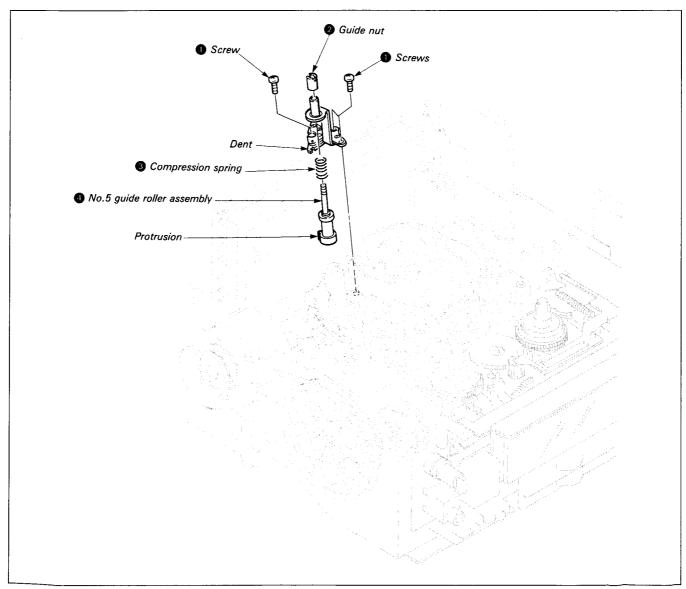


Fig. 7-52.

7-3-21. FWD Back Tension Adjustment (See Fig. 7-53.)

- 1) Remove the cassette compartment assembly according to Section 2, 2-14.
- 2) Remove the mechanism according to Section 2, 2-15.
- 3) Set to LOADING END FWD mode.
- 4) Loosen band adjustment plate 1 screw 2 and adjust as shown by arrow 3 so that the tension regulator arm assembly slit 3 and tension regulator arm assembly pin 4 are positioned as shown, and tighten screw 2.
- 5) Place tension measurement reel (Ref. No. J-7) 6 on the S reel table assembly 5 and line up with No.1 guide, No.2, No.3 guide and the drum.
- 6) Pull dial tension gauge (Ref. No. J-6) 7 in the direction of arrow 3 and hook tension spring 3 onto the tension regulator spring hook assembly 8 so that the value is 13.0±1g, as shown.

Value too large: arrow (a) direction Value too small: arrow (b) direction

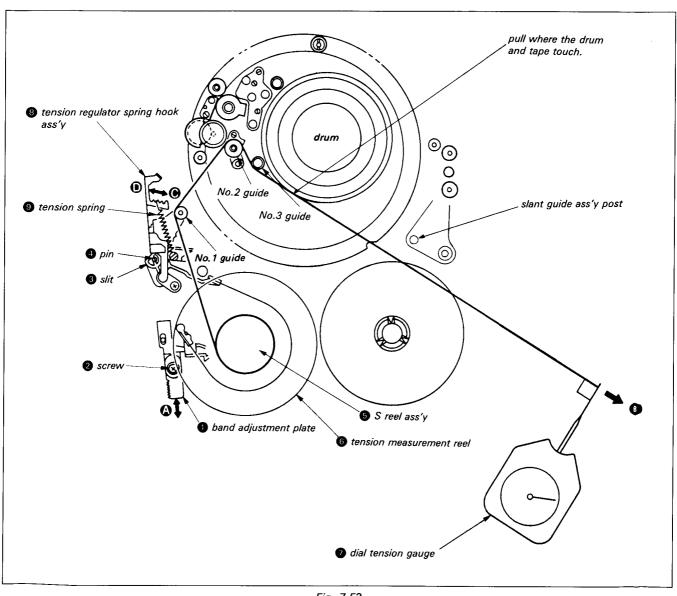


Fig. 7-53.

7-3-22. Replacement of Reel Motor (See Fig. 7-54.)

1. Removal

- 1) Open the SP-2 board according to item Section 2, 2-6.
- 2) Remove connector 1 from SP-2 board.
- 3) Remove the two screws 2 and reel motor bracket 3.
- 4) Remove the two screws **1** and reel motor **1** in the direction of arrow.

- 1) Mount the reel motor **5** to reel motor bracket **3** with two screws **1**.
- 2) Mount the reel motor assembly and tighten with two screws 2.
- 3) Connect the connector 1 to SP-2 board.
- 4) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.

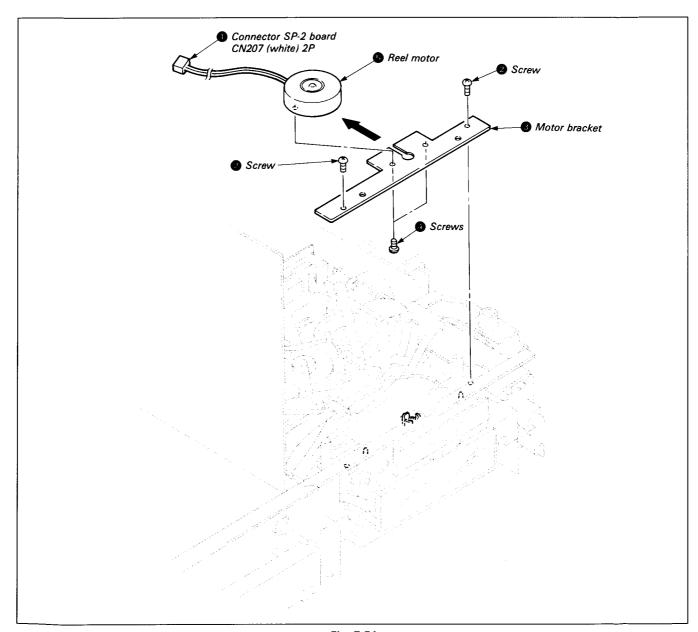


Fig. 7-54.

7-3-23. Check of S and T Main Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- Remove the cassette compartment assembly according to Section 2, 2-14.

1. S Main Brake Torque (See Fig. 7-55, 7-56)

- 1) Set to FF/REW mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

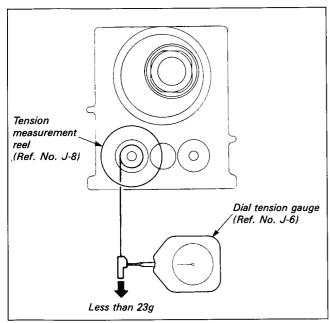


Fig. 7-55.

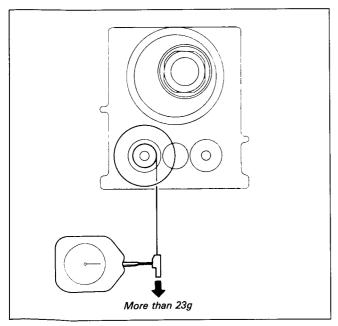


Fig. 7-56.

2. T Main Brake Torque (See Fig. 7-57, 7-58.)

- 1) Set to FF/REW mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

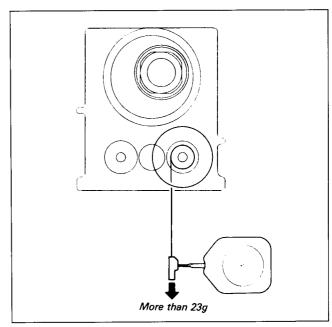


Fig. 7-57.

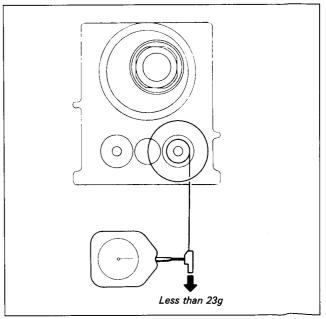


Fig. 7-58.

7-3-24. Check of S and T Soft Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- Remove the cassette compartment assembly according to Section 2, 2-14.

1 S Soft Brake Torque (See Fig. 7-59.)

- 1) Set to FF/REW mode.
- Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Release the S main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

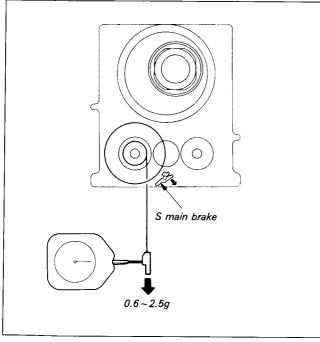


Fig. 7-59.

2. T Soft Brake Torque (See Fig. 7-60.)

- 1) Set to REV mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Release the T main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

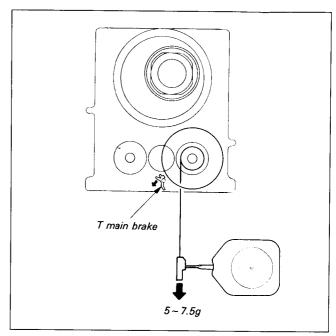


Fig. 7-60.

7-3-25. Check of REV and REW Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.

1. REV Brake Torque (See Fig. 7-61.)

- 1) Set to REV mode.
- Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Release the S main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

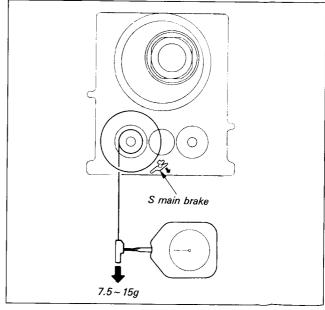


Fig. 7-61.

2. REW Brake Torque (See Fig. 7-62.)

- 1) Set to FF/REW mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Release the T main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are met.

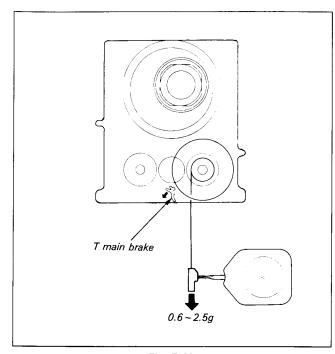


Fig. 7-62.

7-3-26. Check by FWD, RVS Take-up Torque Cassette

Insert the FWD, RVS take-up torque cassette (Ref. No. J-12).

7-4. TAPE PATH ADJUSTMENT

- 2) Set for playback mode and confirm that T reel table torque is $9.5 \sim 15.5$ g · cm.
- 3) Set for playback mode, and check that the S reel torque immediately after the REW button is pressed is 17-23 g·cm.
- 4) Replace the appropriate reel table if the above value are not satisfied.

Blade clock sci TAPE RUNNING SYSTEM DIAGRAM (lock jig) Guide for adjusting entrance Screw for adjusting side upper running amount exit side upper running (number of peaks in RF output waveform) amount (number of peaks in RF output This guide does not control waveform) 0.5-3.5 waveform tape running much, but 1.5-3.5 waveform absorbs tape fluctuation at drum entrance portion Increase in number of peaks in RF output Decrease in number of waveform peaks in RF output Decrease in number of peaks in RF output waveform Inward tilt Guide for controlling entrance side Preset completed tape running (RF output waveform flat) (CAUTION) Tape should not touch upper and lower frange during free-running This guide does not control tape running much, but absorbs Allen wrench tape fluctuation at (lock jig) drum exit portion -314-

drum exit portion

-315-

—314—

ue

(Ref. No.

reel table

eel torque

7-23 g⋅cm.

value are

[REGARDING TRACK SHIFT AND MONITOR JIG]

The video 8 system employs a high precision tracking ATF (auto track finding) and instantaneously controls the tape running speed with the 4 kinds pilot signals. In this way, the tracking adjustment knob becomes unnecessary, and accurate tracking has become possible.

However, on the other hand, there has been difficulty in adjusting the tape path system with the ATF method. It was due to the fact that complete adjustment had been impossible to be performed because even when the tracing of the head had been a slightly off course, the ATF would perform correction automatically.

Because of this, adjustment is carried out to the tape path system by using the track shift & monitor jig (Ref. No. J-6080-851-A). As the track shift and monitor jig forcibly releases the ATF and sets the tracking amount (track shift) manually, the adjustment of the tape path system can easily be carried out.

Perform this adjustment after the electrical adjustment of Section 8 has been completed.

7-4-1. Connection with Track Shift and Monitor Jig

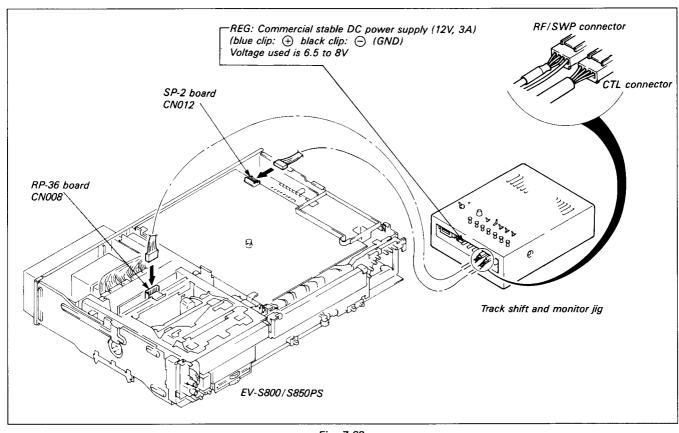


Fig. 7-63.

[Track Shift and Monitor Jig Power Supply]

The track shift & monitor jig has three types of connectors for external power supply, and the following three types of power supply can be used.

Connector Name	Power Supply					
SYSTEM CONN	Connect modified CCD-V8E/UB AC adapter AC-V8 E/UB. (Refer to the track shift and monitor jig instruction manual for the modification procedure.)					
AC ADP	Betamovie AC adapter AC-M100E/UB is connected.					
REG	Connect commercially sold DC stable power supply of more than 12V3A and use at 6.5~8V. Be sure to make correct \oplus and \ominus connections.					

- Two or more types of power supply can not be used at the same time.
- Use the connector supplied with the track shift & monitor jig when connecting.
- Power supplies or voltages other than those given above should not be used.
- When using the modified AC-V8E/UB, the circuit power supply is cut off about 10 seconds after the AC-V8E/UB power switch is turned off.
- Power is not supplied to itself, so be sure to supply AC power to it at the same time.

[Connector Connection]

Connect the track shift & monitor jig as shown in Fig. 7-63. Connect RF/SWP connector to RP-36 board CN008, and the CTL conector to SP-2 board CN012.

[Switch Settings]

SEL switch:

Set to ON when doing track shift. When

OFF, control is from side.

PATTERN switch:

Set to EV side.

ATF LOCK:

Set to OFF.

Other switches are not used during adjustment.

7-4-2. Preparation for Adjustment

- Perform cleaning of the tape running surface (the individual tape guides, drum, capstan shaft and pinch roller).
- 2) Connection of oscilloscope
 1ch: CH2 pin (RF signal)
 2ch: RF SWP pin (RF SWP signal)
 (Fig. 4-1)
- 3) Set the SEL switch of the track shift & monitor jig to OFF, then playback the alignment tape (WR5-1C) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. (a) in 7-64.). If the RF waveform of both sides is not flat, the adjustment should be carried out in accordance with the following.
 - * In case the RF waveform on the entrance side is not flat (Fig. (b) in 7-64.) ... Perform the adjustment in Item 7-4-3. Entrance side adjustment.
 - * In case RF waveform on the exit side is not flat (Fig. © in 7-64.) . . . Perform the adjustment in Item 7-4-4, Exit Side Adjustment.

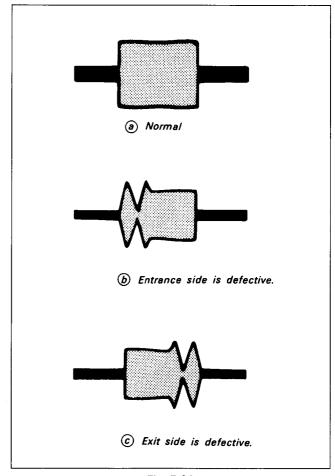


Fig. 7-64.

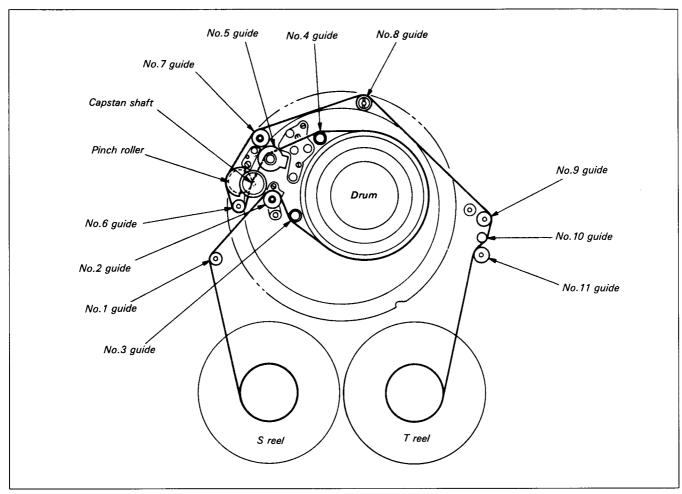


Fig. 7-65. Tape guide arrangement diagram

7-4-3. Entrance Side Adjustment

1) Playback the tracking alignment tape (WR5-1C) and loosen No.2 guide lock screw ①, and rotate No.2 and No.3 guides counterclockwise to free tape running on the entrance side. (See Fig. 7-66.)

Note: Since the space between the top and bottom flanges of No.2 guide is narrow, confirm that the tape is contacting neither top nor bottom flanges at this point. If No.2 guide is loosened excessively, the tape contacts the bottom flange and the RF waveform on the entrance side ceases to be the original free waveform.

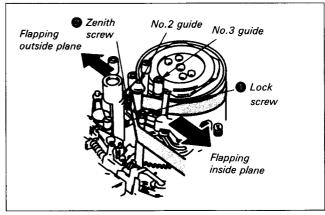


Fig. 7-66.

2) Confirm that RF waveform on the entrance side has 0.5 to 3.5 peaks in this condition. If not, adjust as follows. (See Fig. 7-67.)

[less the 0.5 peak]

Adjust the No.2 guide zenith screw 2 by turning it counterclockwise 90° at a time. (See Fig. 7-66.)

[more than 3.5 peaks]

Adjust the height adjustment screw of No.1 guide (tension regulator assembly) by turning it counterclockwise 90° at a time. (See Fig. 7-68.)

3) Slowly rotate the No.2 guide clockwise to make the entrance side waveform approximately flat. (See Fig. 7-69)

Note: Do not rotate No.2 guide excessively.

- 4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3. (See Fig. 7-70.)
- 5) Turn No.2 guide so that the entrance side waveform flattens slightly. (See Fig. 7-71.)
- 6) Flatten the waveform with No.3 guide. (See Fig. 7-72.)
- 7) Tighten No.2 lock screw ①. (See Fig. 7-66.)

Note: Be sure to perform checking in accordance with 7-4-5. after making the adjustment.

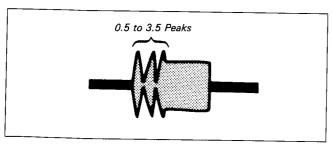


Fig. 7-67.

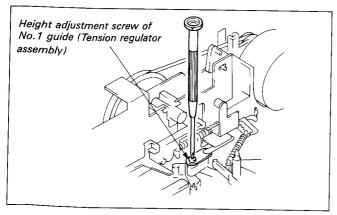


Fig. 7-68.

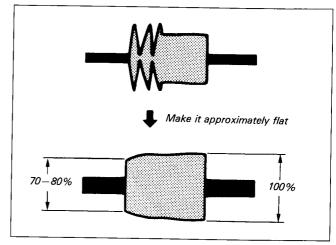


Fig. 7-69.

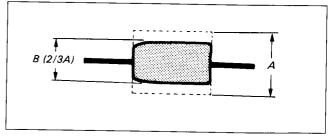


Fig. 7-70.

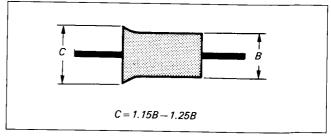


Fig. 7-71.

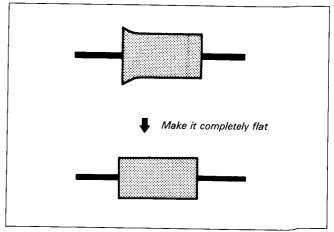


Fig. 7-72.

7-4-4. Exit Side Adjustment

- 1) Playback the alignment tape (WR5-1C) for tracking. Rotate No.4 guide counterclockwise and No.5 guide colockwise in order to make the tape running on the exit side free. (See Fig. 7-73.)
 - Note: If screw lock is stuck to the No.5 guide nut, it may prevent the nut from rotating. Rotate the guide after immersing the nut thread into alcohol and to dissolve the screw lock agent.
 - Check that the tape is not contacting the top and buttom of flanges of No.5 guide during free tape running.
- 2) Check that the RF waveform on the exit side has 1.5 to 3.5 peaks. If not, readjust as follows: (See Fig. 7-74.)

If off standard

- i) Rotate the lock screw ① counterclockwise to loosen.
- ii) Slowly rotate the zenith screw 2 45° at a time and wait until the RF waveform varies.
- iii) Rotate the lock screw ① clockwise to tighten. (See Fig. 7-73.)
- **Note:** The waveform varies if the lock screw is tightened too strongly. Tighten moderately.
 - Never rotate the azimuth screw of No.5 guide.
- 3) Rotate No.5 guide counterclockwise to make the RF waveform on the exit side approximately flat. (See Fig. 7-75.)
 - Note: The waveform reaction is slow against nut rotation. Rotate the nut after the waveform variations are stabilized.
- 4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3 (See Fig. 7-76.)
- 5) Turn No.5 guide so that the exit side waveform flats slightly. (See Fig. 7-77.)
- 6) Turn No.4 guide so that waveform flat. (See Fig. 7-78.)

 Note: Be sure to perform checking in accordance with
 7-4-5. after making the adjustment.

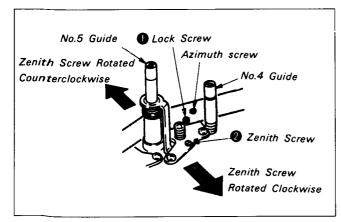


Fig. 7-73.

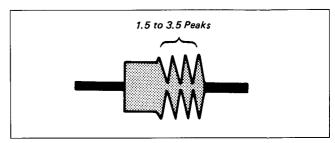


Fig. 7-74.

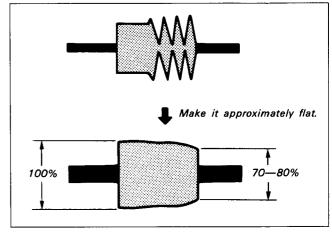


Fig. 7-75.

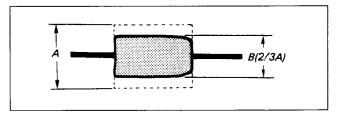


Fig. 7-76.

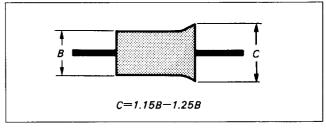


Fig. 7-77.

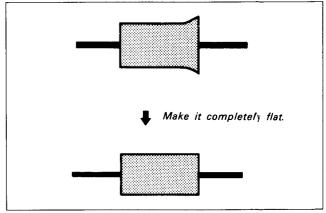


Fig. 7-78.

7-4-5. Checking After Adjustment

1. Tracking check

- 1) Playback the alignment tape (WR5-1C) for tracking.
- 2) Set the SEL switch of the track shift & monitor jig to ON, and turn track shift knob until the RF waveform amplitude is 2/3. (See Fig. 7-79.)

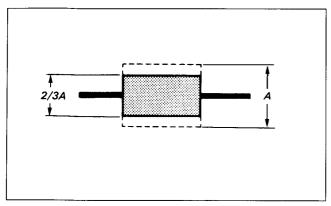


Fig. 7-79.

3) Confirm that the RF waveform amplitude minimum value (E min) at this time is more that 80% of maximum value (E max.). (See Fig. 7-80.)

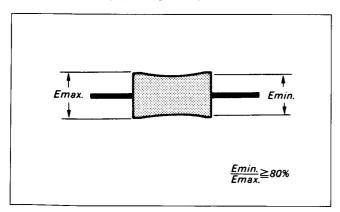


Fig. 7-80.

4) Check that the fluctuation amount of RF waveform entrance and exit sides both is as shown in Fig. 7-81.

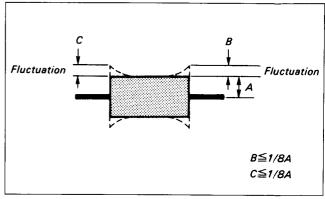


Fig. 7-81.

- Set the SEL switch of the track shift & monitor jig to OFF.
- 6) Set up the REV mode and confirm that the waveform noise pitches are uniform. If not adjust as follows. (See Fig. 7-82.)

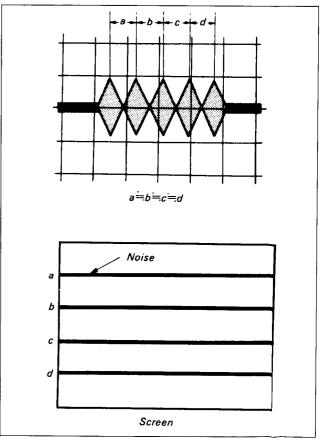


Fig. 7-82.

[Narrow noise pitch on entrance side (upper screen)] (See Fig. 7-83.)

Confirm that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:

Adjust the heights of No.2 and 3 guides as in 7-4-3. Entrance Side Adjustment.

Waveform is flat:

Check again by performing No.1 guide height and No.2 guide zenith adjustment according to 7-4-3. Entrance Side Adjustment.

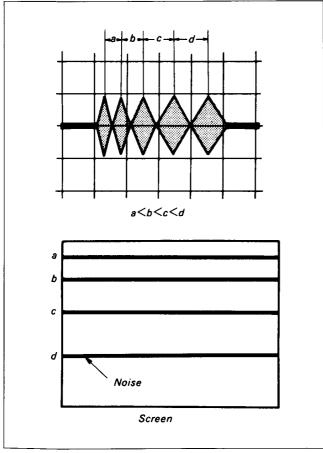


Fig. 7-83.

[Narrow noise pitch on exit side (lower screen)] (See Fig. 7-84.)

Set up the PLAYBACK mode and adjust No.4 and 5 guide heights in accordance with 7-4-4. Exit Side Adjustment.

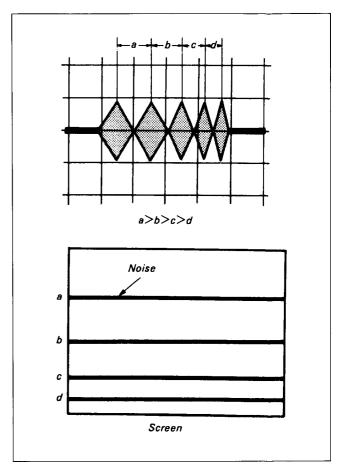


Fig. 7-84

[Wide noise pitch on exit side (lower screen)] (See Fig. 7-85.)

Set up the PLAYBACK mode and confirm that the RF waveform is flat.

Waveform is not flat:

Adjust height of No.4 and 5 guides in accordance with 7-4-4. Exit Side Adjustment.

Waveform is flat:

Rotate the guide lower toothed wheel counterclockwise with No.6 guide lock jig (Ref. No. J-11) to loosen the toothed wheel. Rotate No.6 guide counterclockwise 45° to tighten the lower toothed wheel. Confirm the RF waveform of the REV mode again. (See Fig. 7-86.)

Note: Wrinkles may be caused in Part between the capstan spindle and No.5 guide, if No.6 guide is raised excessively. Confirm that no wrinkles have been caused. (See Fig. 7-87.)

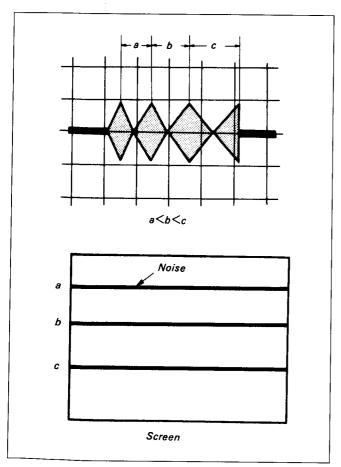


Fig. 7-85.

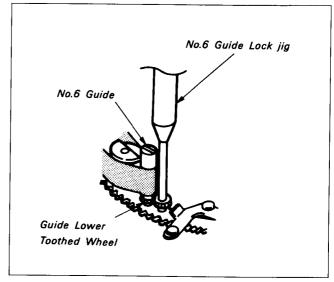


Fig. 7-86.

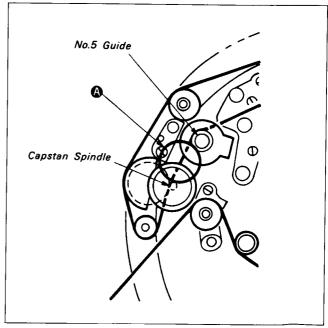


Fig. 7-87.

2. Checking rising edge

1) Check that the RF waveform rises horizontally during playback after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise emits from the exit side (lower screen) with rising during playback after finishing loading] (See Fig. 7-88.)

Check that the FWD back tension is not too low.

If too low:

Readjust as instructed in 7-3-21. FWD Back Tension Adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise 5° at a time and adjust after rechecking the rising edge. (See Fig. 7-89.)

[Noise emits from the exit side (lower screen) with rising during playback after REV] (See Fig. 7-88.)

Loosen the guide lower toothed wheel of No.6 guide using No.6 guide lock jig, rotate No.6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.

Note: Wrinkles may be caused in Part (2) of Fig. 7-87, if No.6 guide is raised excessively at this time, between the capstan spindle and No.5 guide, so check that no wrinkles are caused.

[Noise emits from the exit side (lower screen) with rising during playing back after FF]

(See Fig. 7-88.)

Confirm that the FWD back tension is not too low.

If too low:

Readjust as required in 7-3-21. FWD Back Tension Adjustment.

If normal:

Remote the azimuth screw of the pinch roller clockwise by 5° at a time and adjust after checking the rising edge. (See Fig. 7-89.)

Note: Be sure to check play rising after finishing loading in case an adjustment is made.

3. Tape running check

In PLAYBACK and REV modes, there should be no spaces and curl should be within 0.3 mm for No.1, 2 and 5 guides at No.1 — No.6 guide flanges (Fig. 7-90.). Check also that there is no space or curl at No.3, 4 and 6 guides.

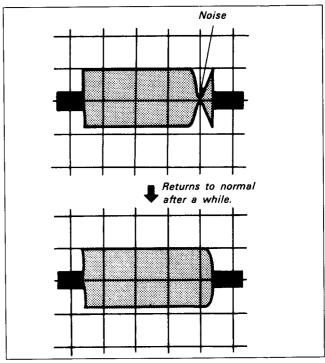


Fig. 7-88.

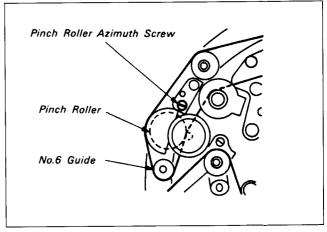


Fig. 7-89.

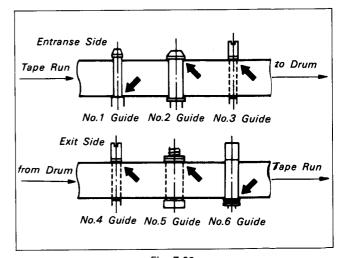


Fig. 7-90.

SECTION 8 ELECTRICAL ADJUSTMENT

During the adjustment, see the parts arrangement diagram relevant to the adjustment on page 348.

The following measuring instruments are needed for electrical adjustment.

[Equipment]

- 1) Monitor TV
- Oscilloscope, dual trace, band 10 MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
- 3) Frequency counter
- 4) PAL pattern generator
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Alignment tapes

Tracking adjustment (WR5-1C)

Parts code: 8-967-995-06

Video frequency response adjustment (WR5-2C)

Parts code: 8-967-995-16

Operation check (WR5-3CL)

Parts code: 8-967-995-36

Operation check (WR5-3CSP)

Parts code: 8-967-995-27

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

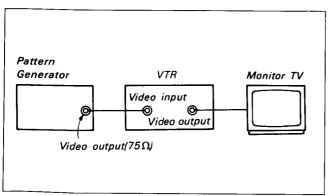


Fig. 8-1.

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope CNJ002 (VIDEO IN) on the VI-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signal and "red" signal is 0.30:0.66. Fig. 8-2. shows video signals (colour bars) used in making the electrical adjustment.

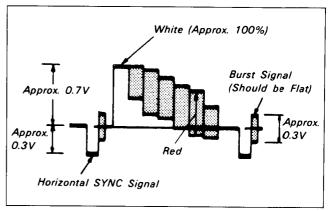


Fig. 8-2.

[Alignment tape]

Tape	Content	Use
Tracking (WR5-1C)	1. Recording area: PCM — video 2. Recording content: CH2: 1 MHz linearity adjustment signal (CH1: 9 MHz)	Drum linearity adjustment
Video Frequency Response (WR5-2C)	 Recording area: Video Recording content: RF sweep 0 to 10 MHz Marker: 1, 3.58, 5.5 and 7 MHz 	Frequency response adjustment
Operation Check SP mode WR5-3CSP LP mode (WR5-3CL)	1. Recording area: Video, PCM 2. Recording content: Video area Video signals Colour bars 10 sec Monoscope 8 sec (Colour bars) Burst Signal	Operation check
	O.3V Horizontal SYNC Signal Red Blue Blue Blue Blue Blue Blue Blue Blue	
	●Audio signals (AFM) 400 Hz 60% modulation ■PCM area (WR5-3CSP only) ●Audio signals (PCM) 1kHz 0dBs 10sec 20Hz -6dBs 2sec 400Hz -6dBs 4sec 14kHz -0.7dBs 2sec 14kHz -0.7dBs 2sec	

Input/output level and impedance

Video input Phono jack

Input signals: 1 Vp-p, 75Ω unbalanced, sync negative

Video output Phono jack

Output signals: 1 Vp-p, 75\Omega unbalanced, sync negative

Audio input Phono jack

Input level: -10dBs (0dBs = 0.775 Vrms)

Input impedance: $47k\Omega$ or higher

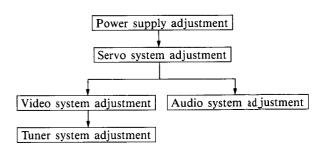
Audio output Phono jack

Regulated output: -10dBs (at load impedance $47k\Omega$)

Load impedance: More than $10k\Omega$

Adjustment Procedure

Adjust in the following sequence:



8-1. Power Supply Adjustment

8-1-1. Oscillation frequency adjustment (DR-35 board)

Mode	E-E
Measurement point	Q201 collector
Measurement equipment	Frequency counter
Adjustment element	RV201
Specified value	91 ± 2kHz

[Adjustment method]

1) Adjust with RV201 so that it becomes $91 \pm 2kHz$.



Fig. 8-3.

8-1-2. REG 5V adjustment (DR-35 board)

Mode	E-E
Measurement point	Pin ③ of CN201
Measurement equipment	Digital voltmeter
Adjustment element	RV202
Specified value	5.3 ± 0.1 Vdc

[Adjustment method]

1) Adjust with RV202 so that it becomes 5.3-0.1Vdc.

8-1-3. REG 12V adjustment (DR-35 board)

Mode	E-E
Measurement point	Pin ① of CN203
Measurement equipment	Digital voltmeter
Adjustment element	RV203
Specified value	12.3 ± 0.3 Vdc

[Adjustment method]

1) Adjust with RV203 so that it becomes 12.3 ± 0.3 Vdc.

8-1-4. Voltages Check (DR-35, DT-63 Boards)

Mode	E-E	
Measurement equipment	Digital voltmeter	
UNSW 5V Check		
Measurement point	Pin ② of CN203 on DR-35 board	
Specified value	$5.4 \pm 0.2 \text{Vdc}$	
DRIVE 9V Check		
Measurement point	Pin 4 of CN202 on DR-35 board	
Specified value	9.1 ± 0.2Vdc	
UNSW 38V Check		
Measurement point	Pin ② of CN104 on DT-63 board	
Specified value	36.5 ± 0.8 Vdc	
UNSW -30V Check		
Measurement point	Pin ④ of CN104 on DT-63 board	
Specified value	$-29\pm0.8\text{Vdc}$	
UNSW 9V Check		
Measurement point	Pin ① of CN105 on DT-63 board	
Specified value	$8.8 \pm 0.2 \text{Vdc}$	
UNSW -9V Check		
Measurement point	Pin ③ of CN105 on DT-63 board	
Specified value	$-8.8 \pm 0.2 \text{Vdc}$	
BACK UP 5V Check		
Measurement point	Pin ⑦ of CN106 on DT-63 board	
Specified value	5.7 ± 0.8 Vdc	

[Confirmation method]

Check that each voltage satisfies the specified value.

8-2. SERVO SYSTEM ADJUSTMENT

8-2-1. Reel Bias Adjustment (SP-2 board)

Mode	REC (SP)
Signal	Arbitrary
Measurement point	+: TP210 (Pin ② of CN207) -: TP211 (Pin ① of CN207)
Measurement equipment	Digital voltmeter
Adjustment element	RV209
Specified value	1.00 - 0.05Vdc

[Adjustment method]

- 1) Set up the REC mode and wait for 5 seconds.
- 2) Adjust with RV209 so that the DC-voltage is 1.00 ± 0.05Vdc.
- 3) Set up the FF mode.
- 4) Check that the DC-voltage is $2.25 \pm 0.1 \text{Vdc}$.

8-2-2. REC ATF Level Check (SP-2 board)

Mode	E-E
Signal	Arbitrary
Measurement point	TP235 (CN214 (5) PIN: REC ATF)
Measurement equipment	Oscilloscope
Specified value	500 ± 50mVp-p

[Confirmation method]

1) Check that the REC ATF level is $500 \pm 50 \text{mVp-p}$.

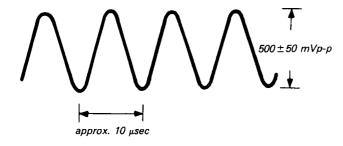


Fig. 8-4.

8-2-3. Drum Free Speed Adjustment (SP-2 Board)

Mode	REC
Signal	Arbitrary
Measurement point	TP213 (IC212 (4) PIN: ADE)
Measurement equipment	Digital voltmeter
Adjustment element	RV202
Specified value	1.9 ± 0.1 Vdc

[Adjustment method]

1) Adjust with RV202 so that it becomes $1.9 \pm 0.1 \text{Vdc}$.

8-2-4. Capstan Free Speed Adjustment (SP-2 Boards)

Mode	Playback
Signal	Arbitrary tape
Measurement point	TP202 (IC204 (3) PIN: CFG)
Measurement equipment	Frequency counter
Adjustment element	SP mode: RV206 LP mode: RV208
Specified value	SP mode: 1341±1Hz LP mode: 670±1Hz

[Connection]

1) Connect TP230 (Q704 emitter: PB ATF) and TP002 (GND) with a jumper wire.

[Adjustment method]

The adjustment element of LP mode is shown in parentheses [].

- 1) Set up the SP [LP] mode by the SP/LP button.
- 2) Set up the playback mode.
- 3) Adjust with RV206 [RV208] so that it becomes 1341 ± 1 Hz [670 ± 1 Hz].

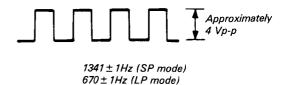


Fig. 8-5.

8-2-5. Switching Position Adjustment (SP-2 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP)
Measurement point	CH1: VIDEO OUT terminal CH2: TP207 (IC204 ② PIN: SV RF)
Measurement equipment	Oscilloscope
Adjustment element	RV201
Specified value	$6.5 \pm 0.3 \text{H} \ (416 \pm 20 \ \mu\text{sec})$

[Adjustment method]

1) Adjust with RV201 so that it becomes 6.5 ± 0.3 H $(416 \pm 20 \mu \text{sec})$.

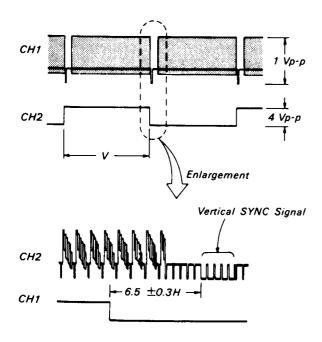


Fig. 8-6.

8-2-6. ATF BPF Balance Adjustment (SP-2 Board)

Mode	Playback
Signal	See Fig. 8-7
Measurement point	TP236 (IC703 9 PIN: ATF ER)
Measuring equipment	Oscilloscope.
Adjustment element	RV701
Specified value	Minimum level difference of the ATF ERROR signal.

[Connection 1]

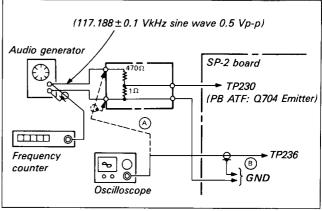


Fig. 8-7.

[Connection 2]

Connect Pin 5 of CN012 (P SEL 1) to Pin 1 of CN005 (REG 5V) with a jumper wire.

[Adjustment method]

- 1) Check the output level of the audio generator with an oscilloscope and adjust so that the sine wave output level becomes 0.5 Vp-p. (Fig. 8-7 (A))
- 2) Adjust the oscillation frequency of the audio generator so that reading of the frequency counter becomes $117.188 \pm 0.1 \text{kHz}$.
- 3) Playback an arbitrary tape.
- 4) Connect an oscilloscope to TP236.
- Adjust with RV701 to eliminate level difference of the ATF ERROR signal.

Eliminate level difference of these portion

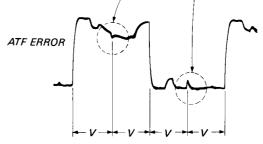


Fig. 8-8.

8-2-7. SLOW Tracking Adjustment (SP-2 Board)

The adjustment element of LP mode is shown in parenthess [].

Mode	SLOW
Signal	SP [LP] mode recorded tape
Measurement point	TP232 (IC208 23 PIN: C. ON)
Measurement equipment	Oscilloscope •Trigger mode: NORMAL •Trigger slope: +
Adjustment element	SLOW/STILL ADJ buttons in the tuner preset compartment (S004, S005 on PR-13 board)
Specified value	38.5 ± 0.5 msec

[Connection]

Connect TP001 (IC001 39 PIN: EMERG OFF) and TP002 (GND) with a jumper wire to set up the TEST mode.

[Adjustment method]

- 1) Playback the SP [LP] recorded tape.
- 2) Adjust to 38.5 ± 0.5 msec with the SLOW/STILL ADJ buttons.

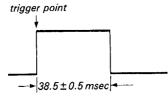


Fig. 8-9.

8-2-8. TRACKING Adjustment (SP-2 Board)

Mode	Playback
Signal	SP mode Self-recorded tape
Measurement point	CH1: Pin ③ of CN008 on RP-36 board (SP 1 CH) CH2: TP207 (Pin ② of IC204: SV RF)
Measurement equipment	Oscilloscope
Adjustment element	RV210
Specified value	Maximum SP 1 channel RF level

[Adjustment method]

 Maximize the SP 1 channel RF level by turning RV210 slowly.

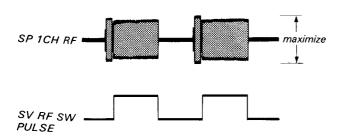


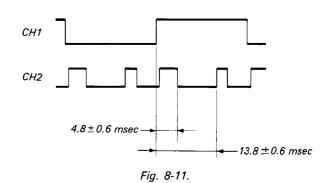
Fig. 8-10.

8-2-9. STILL Adjustment (SP-2 Board)

Mode	STILL
Signal	SP mode self-recorded tape
Measurement point	CH1: TP207 (Pin ②) of IC204: SV RF) CH2: TP228 (Pin ⑧ of IC703: ST ID)
Measurement equipment	Oscilloscope.
Adjustment element	RV203, RV204
Specified value	1. 4.8 ± 0.6 msec (RV203) 2. 13.8 ± 0.6 msec (RV204)

[Adjustment method]

- 1) Rotate the rotor of the capstan motor by your hand and stop it at the position that noise on the monitor screen is hidden into its upper or lower section.
- 2) Adjust to 4.8 ± 0.6 msec with RV203. (See Fig. 8-11.)
- 3) Adjust to 13.8 ± 0.6 msec with RV204. (See Fig. 8-11.)



8-2-10. FORWARD SLOW Adjustment (SP-2 Board)

The adjustment element of LP mode is shown in parentheses [].

Mode	FORWARD SLOW
Signal	SP [LP] mode self-recorded tape
Measurement point	Confirm with monitor TV
Measurement equipment	screen picture
Adjustment element	RV205 [RV207]
Specified value	Be sure that there is no noise and no skew on the monitor TV screen.

[Adjustment method]

1) Adjust with RV205 [RV207] so that noise on the monitor screen is hidden into its upper or lower section.

8-2-11. SLOW fн Adjustment (SP-2 Board)

1. fH Bias Adjustment

The adjustment element of LP mode is shown in parentheses [].

Mode	E-E
Signal	None
Measurement point	TP242 (Pin ⑦of IC219: FH BIAS)
Measurement equipment	Digital voltmeter
Adjustment element	RV216 [RV215]
Specified value	2.0±0.1Vdc

[Adjustment method]

- 1) Set up the SP [LP] mode by the SP/LP button.
- 2) Adjust with RV216 [RV215] to $2.0 \pm 0.1 \text{Vdc}$.

8-2-12. SLOW fH Adjustment

The adjustment element of LP mode is shown in parentheses [].

Mode	FORWARD SLOW
Signal	SP [LP] mode self-recorded tape
Measurement point	Pin ③ of CN216 (COMP SYNC)
Measurement equipment	Oscilloscope
Adjustment element	RV218, RV212 [RV217]
Specified value	Minimum shaking width of fu pulse

[Connection]

Connect TP001 (EMERG OFF) and TP002 (GND) with a jumper wire to set up the TEST mode.

[Adjustment method]

1) Adjust with RV218 and RV212 Alternately to minimize the shaking of the fH pulse.

[Adjust with RV217 to minimize the shaking width of fH pulse.]

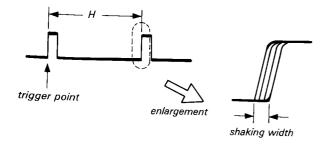


Fig. 8-12.

8-3. VIDEO SYSTEM ADJUSTMENT

The adjustment of the video system should in principle be followed the undermentioned adjustment procedure.

The colour video signal supplied from the pattern generator is utilized as the video input signal of the video system adjustment in recording mode. Make sure to check that the SYNC signal and colour burst signal are matched with those in the set-up of during the adjustment of as shown in Fig. 8-2.

[Adjustment procedure]

- 1) Playback frequency characteristics adjustment
- 2) Flying erase check
- 3) Crystal oscillator fo adjustment
- 4) Y/C separation adjustment
- 5) Y comb type filter adjustment
- 6) SYNC AGC adjustment
- 7) VIDEO OUT level adjustment
- 8) PB Y level adjustment
- 9) Y FM carrier frequency adjustment
- 10) Y FM deviation adjustment
- 11) AC clipping adjustment
- 12) 375fH VCO adjustment
- 13) Chroma emphasis fo adjustment
- 14) Carrier balance adjustment
- 15) GCA adjustment
- 16) fH VCO adjustment
- 17) REC Y level adjustment
- 18) REC C level adjustment
- 19) REC AFM level check
- 20) REC ATF level check

8-3-1. Playback Frequency Characteristic Adjustment (RP-36 Board)

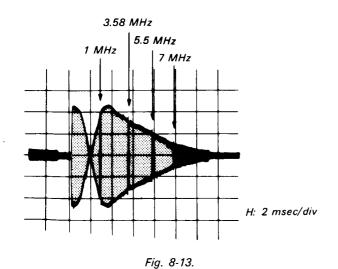
(1) LP playback frequency characteristic adjustment

The adjustment elements of CH2 are shown in parentheses [].

Mode	Playback
Signal	Alignment tape: For frequency characteristic adjustment (WR5-2C)
Measurement point	Pin (5) [Pin (6)] of CN008 •External trigger: Pin (2) of CN008 •Trigger slope: + [-]
Measurement equipment	Oscilloscope
Adjustment element	RV101 [RV102]
Specified value	3.58MHz level: 5.5MHz level = 10:7

[Adjustment method]

1) Adjust with RV101 [RV102] so that the level difference ratio between 3.58 MHz and 5.5 MHz becomes 10:7.



(2) SP playback frequency characteristic adjustment

The adjustment elements of CH2 are shown in parentheses [].

Mode	Playback
Signal	Alignment tape: For frequency characteristic adjustment use (WR5-2C)
Measurement point	Pin ③ [Pin ④] of CN008 •External trigger: Pin ② of CN008 •Trigger slope: - [+]
Measu rement equipment	Oscilloscope.
Adjustment element	RV201 [RV202]
Specified value	3.58MHz level: 5.5MHz level = 10:7

[Connection]

Connect TP206 (F TAPE) on the SP-2 board and GND with a jumper wire.

[Adjustment method]

1) Adjust with RV201 [RV202] so that the level difference ratio between 3.58 MHz and 5.5 MHz becomes 10:7.

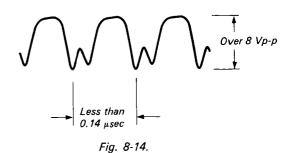
8-3-2. Flying Erase Check (RP-36 Board)

Mode	REC
Signal	Arbitrary
Measurement point	Pin 18 of CN001 (FE(X))
Measurement equipment	Oscilloscope and frequency counter
Specified value	Frequency: Over 7 MHz Voltage: Over 8 Vp-p

Note: Be sure to use MP type tape (Pin ② of CN002 should be "L").

[Confirmation method]

1) Make sure that the oscillation frequency is over 7 MHz and the oscillation voltage is over 8 Vp-p.



8-3-3. Crystal Oscillator fo Adjustment (CH-44/VI-20 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP)
Measurement point	Pin 2 of CH-44 board
Measurement equipment	Frequency counter
Adjustment element	CV001 on CH-44 board
Specified value	4433619 ± 50Hz

Note: Connect the frequency counter through a buffer of high impedance (approximately 10 M Ω) and low capacitance (less than 10pF)

[Adjustment method]

1) Adjust with CV001 on the CH-44 board so that it becomes 4433619±50Hz.

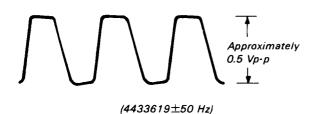


Fig. 8-15.

8-3-4. Chrome Comb Filter Adjustment (VI-20 Board)

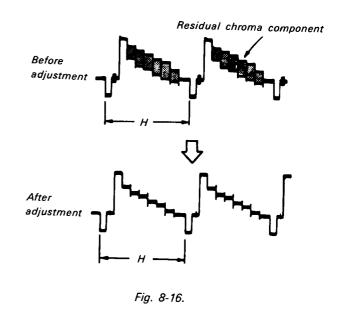
Mode	E-E
Signal	Colour bar
Measurement point	Pin @ of IC002
Measuring equipment	Oscilloscope.
Adjustment element	RV011, LV201
Specified value	Minimum residual chroma component

[Connection]

Connect Q202 base to GND with a jumper wire.

[Adjustment method]

1) Adjust with RV011 and LV201 alternately so that the residual chroma component becomes minimum.



8-3-5. Y Comb Type Filter Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 3 of IC002
Measurement equipment	Oscilloscope
Adjustment element	RV012
Specified value	Minimum Y-YD signal level

Note: Be sure to connect a $22k\Omega$ of resistor in series between Pin 3 of IC002 and 10:1 probe.

[Adjustment method]

- 1) Adjust with RV012 so that the Y-YD signal level at the sync portion is minimum.
- 2) While playing back a tape in which dropouts are recorded, be sure to confirm that these dropouts are not discernible. In the event the dropouts become discernible, adjust with RV012 so that they become undiscernible.

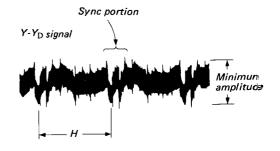


Fig. 8-17.

8-3-6. SYNC AGC Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 31 of IC001
Measurement equipment	Oscilloscope
Adjustment element	RV009
Specified value	$0.50 \pm 0.02 \text{Vp-p}$

[Adjustment method]

1) Adjust with RV009 so that it becomes 0.50 ± 0.02 Vp-p.

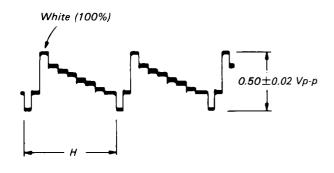


Fig. 8-18.

8-3-7. VIDEO OUT Level Adjustment (VI-20 Board)

Mode	E-E	
Signal	Colour bar	
Measurement point	Pin 5 of CN007	
Measurement equipment	Oscilloscope.	
Adjustment element	RV010	
Specified value	1.00 ± 0.05 Vp-p	

[Adjustment method]

1) Adjust with RV010 so that it becomes 1.00 ± 0.05 Vp-p.

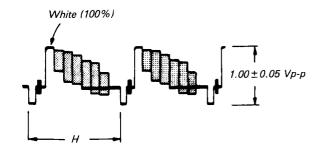


Fig. 8-19.

8-3-8. PB Y Level Adjustment (VI-20 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3 CSP) Colour bar section
Measurement point	Pin ⑤ of CN007
Measurement equipment	Oscilloscope
Adjustment element	RV005
Specified value	1.00 ± 0.05 Vp-p

Note: 1. Set the SHARPNESS control (FT-13 board RV001) to the center click position.

2. Be sure that the EDIT switch (S014 on FT-13 board) is turned OFF. (Confirm that the EDIT lamp is not lit.)

[Adjustment method]

1) Adjust with RV005 so that it becomes 1.00 ± 0.05 Vp-p.

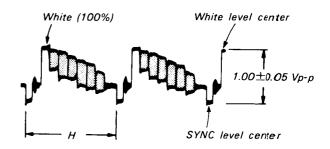


Fig. 8-20.

8-3-9. Y FM Carrier Frequency Adjustment (VI-20 Board)

Mode	E-E
Signal	Non-signal
Measurement point	Pin 5 of CN003 (REC Y)
Measurement equipment	Frequency counter
Adjustment element	RV008
Specified value	4.20±0.05 MHz

Note: Set up the SP mode.

[Adjustment method]

- 1) Set RV007 (EMPH) to the mechanical center. (The slide pin of RV007 is approximately 2.7Vdc.)
- 2) Adjust with RV008 so that it becomes 4.20 ±0.05MHz.
- 3) Be sure to perform the "Deviation adjustment" and "AC CLIP adjustment".

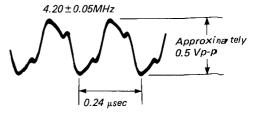


Fig. 8-21.

8-3-10. Y FM Deviation Adjustment (VI-20 Board)

Mode	Recording and playback
Signal	Colour bar
Measurement point	Pin ⑤ of CN007
Measurement equipment	Oscilloscope
Adjustment element	RV006
Specified value	Playback level: 1.00 ± 0.05 Vp-p

- Note: 1. Be sure that the "VIDEO OUT level adjustment".

 "PB Y level adjustment" and "Y FM carrier frequency adjustment" have been completed.
 - 2. Set the SHARPNESS Control (FT-13 board RV001) to the center click position.
 - 3. Be sure the EDIT switch (S014 on the FT-13 board) is turned OFF. (Confirm that the EDIT lamp is not lit.)

[Adjustment method]

- 1) Record the colour bar signal.
- 2) Playback the recorded section.
- 3) Be sure to check the playback output level. Specified value: 1.00±0.05 Vp-p
- 4) When the specified value is not satisfied, repeat 1) to 3) after turning RV006 in the following manner.

	Turning direction of RV006 Seen from component side
When larger than the specified value	Clockwise ()
When smaller than the specified value	Counterclockwise (())

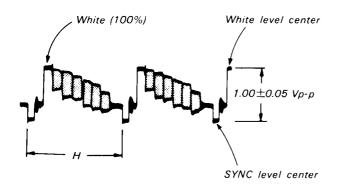


Fig. 8-22.

8-3-11. Emphasis Adjustment (VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin ® of IC001
Measurement equipment	Oscilloscope
Adjustment element	RV007
Specified value	230 ± 10%

[Adjustment method]

1) Adjust with RV007 so that the peak of the white 100% becomes $230 \pm 10\%$.

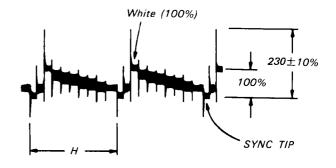


Fig. 8-23.

8-3-12. 375fH VCO Adjustment (CH-44/VI-20 Board)

Mode	Recording
Signal	Colour bar
Measurement point	Pin 26 of IC001 on CH-44 board
Measurement equipment	Digital voltmeter
Adjustment element	RV001 on CH-44 board
Specified value	$3.00 \pm 0.05 \text{Vdc}$

[Adjustment method]

1) Adjust with RV001 on the CH-44 board so that it becomes 3.0 ± 0.05 Vdc.

8-3-13. Chroma Emphasis fo Adjustment (CH-44/VI-20 Boards)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 36 of CH-44 board
Measurement equipment	Oscilloscope
Adjustment element	T001 on CH-44 board
Specified value	Be sure to confirm that the fo component is minimum and zero cross appears between green and magenta.

[Connection]

Connect the following two locations of CH-44 board using $4.7k\Omega$ resistors.

Pin ② (ACC) — Pin ③ (GND)

Pin (3) (ACC) — Pin (3) (5V)

[Adjustment method]

1) Adjust with T001 on the CH-44 board so that the amplitude of the flat cyan section of the chroma signal becomes minimum.

At this point, be sure to confirm that the zero cross appears between the green and magenta.

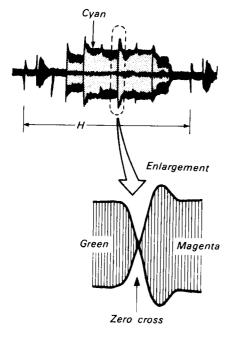


Fig. 8-24.

8-3-14. Carrier Balance Adjustment (CH-44/VI-20 Board)

Mode	E-E
Signal	Colour bar
Measurement point	Pin 28 of CH-44 board
Measurement equipment	Oscilloscope
Adjustment element	RV002 on CH-44 board
Specified value	Minimize 5.17 MHz signal component

[Adjustment method]

 Adjust with RV002 on the CH-44 board so that the 5.17 MHz signal component becomes minimum.

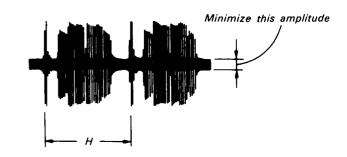


Fig. 8-25.

8-3-15. GCA Adjustment (VI-20 Board)

Mode	Playback
Signal	Arbitrary tape
Measurement point	Pin ② of IC005
Measurement equipment	Oscilloscope
Adjustment element	RV014
Specified value	500 ± 25 mVp-p

[Adjustment method]

- 1) Adjust with RV014 so that it becomes 500 ± 25 mVp-p.
- 2) Set to either the STILL, CUE or REVIEW mode, and be sure to confirm that the thickness of the colour does not differ from that of the playback mode. If necessary, adjust with RV014. (Be sure to play back a tape of LP mode.)



Fig. 8-26.

8-3-16. fH VCO Adjustment (VI-20 Boards)

Mode	E-E
Signal	Colour bar
Measurement point	CH1: Pin ③ of IC005 CH2: Pin ⑤ of CN007
Measurement equipment	Oscilloscope
Adjustment element	RV013
Specified value	$14.5 \pm 0.2 \ \mu sec$

[Adjustment method]

- 1) Adjust RV013 so that the Tr of CH1 is $14.5 \pm 0.2 \mu sec.$
- 2) Confirm that the H (time) of CH1 and CH2 is stable.

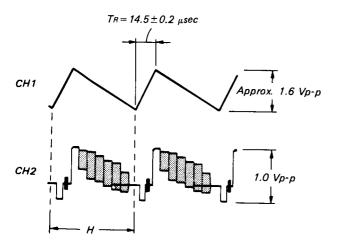


Fig. 8-27.

8-3-17. REC Y Level Adjustment (VI-20 Boards)

Mode	REC (SP mode)
Signal	Non-signal
Measurement point	Pin ⑤ of CN003 (Note 2.)
Measurement equipment	Oscilloscope
Adjustment element	RV005
Specified value	0.46±0.02 Vp-p

Note 1: Be sure to always perform the adjustment of the REC C level after the REC Y level adjustment has been completed.

Note 2: Use the low-pass filter shown in Fig. 8-28.

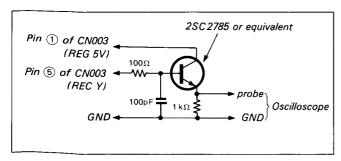


Fig. 8-28.

[Adjustment method]

1) Adjust with RV005 so that it becomes 0.46 ± 0.02 Vp-p.

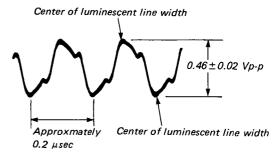


Fig. 8-29.

8-3-18. REC C Level Adjustment (VI-20 Board)

Mode	REC
Signal	Colour bar
Measurement point	Pin ⑤ of CN003 (Note 1.)
Measurement equipment	Oscilloscope
Adjustment element	RV001
Specified value	58±3 mVp-p

Note 1: Use the low-pass filter shown in Fig. 8-28.

Note 2: Be sure to use the MP type tape. (Be sure Pin 4) of W001 TAPE 2/TAPE 1 is at "L".)

[Connection]

Connect the following three points on VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W002 ① PIN (REC AFM) and GND.
- 3) W005 5 PIN (REC ATF) and GND.

[Adjustment method]

1) Adjust with RV001 so that it becomes 60 mVp-p.

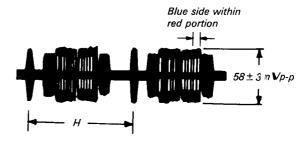


Fig. 8-30.

8-3-19. REC AFM Level Check (VI-20 Boards)

Mode	REC (SP mode)
Signal	Non-signal
Measurement point	Pin ⑤ of CN003 (Note 1.)
Measurement equipment	Oscilloscope
Specified value	20.5 ± 4.0 mVp-p

Note: 1. Use the low-pass filter shown in Fig. 8-28.

- 2. Be sure to use the MP type tape.
 (Be sure Pin 4) of W001 TAPE 2/TAPE 1 is at "L".
- 3. When the signal level is too small to read, use a 1:1 probe.

[Connection]

Connect the following three points on the VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W005 (5) PIN (REC ATF) and GND.

[Confirmation method]

1) Check that the REC AFM level is 20.5 ± 4.0 mVp-p.

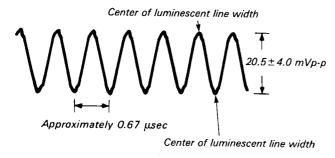


Fig. 8-31.

8-3-20. REC ATF Level Check (VI-20 Board)

Mode	REC (SP mode)	
Signal	Non-signal	
Measurement point	Pin 5 of CN003	(Note 1.)
Measurement equipment	Oscilloscope	
Specified value	$13.5 \pm 3.0 \text{ mVp-p}$	

Note: 1. Use the low-pass filter shown in Fig. 8-28.

- 2. Be sure to use the MP type tape.
 (Be sure Pin ④ of W001 TAPE 2/TAPE 1 is at "L".)
- 3. When the signal level is too small too read, use a 1:1 probe.

[Connection]

Connect the following two points on the VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W002 (1) PIN (REC AFM) and GND.

[Confirmation method]

1) Check that the REC ATF level is 13.5 ± 3.0 mVp-p.

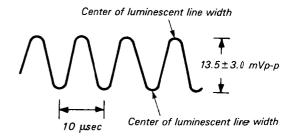


Fig. 8-32.

8-4. AUDIO SYSTEM ADJUSTMENT

Use a colour bar signal as video signal input when performing adjustment.

Connection of Audio Adjustment Measuring Instruments Connect the following audio measuring equipment in addition to the video measuring instruments.

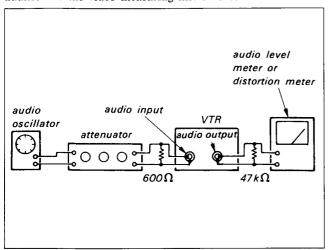


Fig. 8-33.

8-4-1. PCM Audio System Adjustment

Unless otherwise specified, set the VTR switches and controls as shown below when making the adjustment.

INPUT SELECT switchLINE	
AUDIO MONITOR (PCM/MIX/STD)	
switchPCM	
REC LEVEL controls	
PCM MODE switchNORMAI	_

Note: The adjustment element of R ch is shown in parentheses [].

[Adjustment Order]

- 1) PCM Master Clock Oscillation Frequency Adjustment
- 2) REC PCM Level Check
- 3) MULTI PILOT Frequency Check
- PCM Playback VCO Free Oscillation Frequency Adjustment
- 5) MULTI PILOT Detector Adjustment
- 6) PCM Playback Level Adjustment
- 7) E-E Output Level Check
- 8) PCM Offset Adjustment
- 9) PCM Recording Level Adjustment
- 10) Overall Frequency Characteristics
- 11) Overall Distortion Ratio Check
- 12) Overall S/N Check

1. PCM Master Clock Adjustment (SP-2 Board)

Mode	Record
Signal	None
Measurement point	Pin ③ of CN601
Measurement equipment	Frequency counter
Adjustment element	RV602
Specified value	11.45 ± 0.01 MHz

[Adjustment method]

- 1) Connect TP604 (IC605 (4) PIN) to Pin (1) (REG 5V) of CN601 with a jumper wire.
- 2) Adjust to 11.45 ± 0.01 MHz with RV602.
- 3) Remove the jumper wire.
- 4) Connect TP604 to GND with a jumper wire.
- 5) Check that the frequency is more than 11.63MHz.

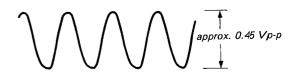


Fig. 8-34.

2. REC PCM Level Check (SP-2 board)

Mode	Record
Signal	None
Measurement point	Pin ① of CN607
Measurement equipment	Oscilloscope
Specified value	approx. 0.5 Vp-p

[Confirmation method]

1) Check that the REC PCM level is approximately 0.5 Vp-p.

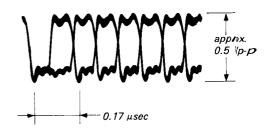


Fig. 8-35.

3. MULTI PILOT Frequency Check (SP-2 board)

Mode	E-E
Signal	Arbitrary
Measurement point	Pin 39 of IC204
Measurement equipment	Frequency counter
Specified value	225.360 ± 0.200 kHz

[Confirmation method]

1) Check that the frequency is 225.360 ± 0.200 kHz.



Fig. 8-36.

4. PCM Playback VCO Free Oscillation Frequency Adjustment (SP-2 Board)

Mode	PLAYBACK, FF INDEX SEARCH and REW INDEX SEARCH
Signal	Arbitrary tape
Measurement point	TP603
Measurement equipment	Frequency counter
Adjustment element	RV601 (PLAYBACK) RV604 (FF INDEX SEARCH) RV603 (REW INDEX SEARCH)
Specified value	11.50±0.05 MHz (PLAYBACK) 10.29±0.05 MHz (FF INDEX SEARCH) 12.71±0.05 MHz (REW INDEX SEARCH)

[Connection]

- 1) Connect TP600 (IC600 ① PIN) to Pin ① (REG 5V) of CN005 with a jumper wire.
- 2) Disconnect the CN607 from the SP-2 board.

[Adjustment method]

- 1) Set up the PLAYBACK mode.
- 2) Adjust to 11.50 ± 0.05 MHz with RV601.
- 3) Set up the FF INDEX SEARCH mode.
- 4) Adjust to 10.29 ± 0.05 MHz with RV604.
- 5) Set up the REW INDEX SEARCH mode.
- 6) Adjust to 12.71 ± 0.05 MHz with RV603.



Fig. 8-37.

5. MULTI PILOT Detector Adjustment (MK-2/AU-22 board)

Mode	E-E
Signal	None
Measurement point	1. Pin ⑤ of IC801 on MK-2 board 2. Pin ⑤ of IC821 on MK-2 board
Measurement equipment	Frequency counter
Adjustment element	1. RV801 (SP 1 CH) on MK-2 board 2. RV821 (LP 2 CH) on MK-2 board
Specified value	225.361 ± 1 kHz

Note: Connect the frequency counter through a buffer of high impedance (approximately $10M\Omega$) and low capacitance (less than 10pF)

The adjustment element of LP 2 CH is shown in parentheses [].

[Adjustment method]

- 1) Connect the frequency counter to Pin (5) of IC801 [IC851].
- 2) Adjust to $225.361 \pm 1 \text{kHz}$ with RV801 [RV821].

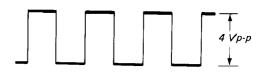


Fig. 8-38.

6. PCM Playback Level Adjustment (AD-12/AU-22 Board)

Mode	Playback
Signal	Alignment tape: For Operation confirmation (WR5-3CSP) 400Hz section
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Adjustment element	RV705 on AD-12 board
Specified value	$-10.0 \pm 0.1 dBs$

[Adjustment method]

1) Adjust to -10.0 ± 0.1 dBs with RV705.

Note: If there is a level difference between Lch and Rch, adjust to the center level.

7. E-E Output Level Check

Mode	E-E
Signal	400Hz, -10dBs: AUDIO IN L [R]
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	-10 ± 2dBs

[Confirmation method]

- 1) Set the REC LEVEL control to 5 position.
- 2) Check that the REC LEVEL meter indicate 10dB.
- 3) Check that the AUDIO OUT L [R] level is -10 ± 2 dBs.

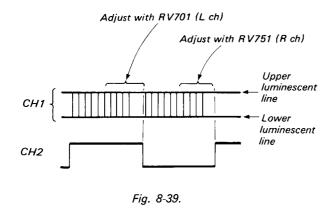
8. PCM Offset Adjustment (AD-12/AU-22 Board)

Mode	REC
Signal	None
Measurement point	CH1: Pin (9) (ADDA) of AD-12 board CH2: Pin (11) (WCK) of AD-12 board
Measurement equipment	Oscilloscope
Adjustment element	RV701 [RV751] on AD-12 board
Specified value	Equal brightness of the upper luminescent line and the lower

Note: Be sure to perform the adjustment alternatly, since Lch and Rch affect each others.

[Adjustment method]

- 1) Set the REC LEVEL controls to the minimum position.
- Adjust with RV701 [RV705] so that the brightness of the uppwer luminescent line is equal to that of the lower luminescent line.



9. PCM Recording Level Adjustment (AD-12/AU-22 board)

Mode	Self-recording and playback
Signal	400Hz, -10dBs: AUDIO IN (Both L and R)
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Adjustment element	RV703 [RV753] on AD-12 board
Specified value	$-10\pm0.5\mathrm{dBs}$

Note: Be sure that the "PCM playback level adjustment" have been completed.

[Adjustment method]

- 1) Set up E-E mode.
- 2) Adjust with the REC LEVEL control so that the AUDIO OUT level is -10dBs. (Both L CH and R CH).
- 3) Record the signal.
- 4) Playback the recorded portion.
- Check that the AUDIO OUT L [R] level is −10 ±0.5dBs.
- 6) If the specified value is not satisfied, repeat 1 to 5 after turning RV703 [RV753] on AD-12 board.

10. Overall Frequency Characteristic Check

Mode	Self-recording and playback
Signal	 A 400Hz, −10dBs B 20Hz, −10dBs C 14kHz, −10dBs AUDIO IN L [R]
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	When the playback output level of 400Hz is specified as 0dB. that of 20Hz should be 0±2dB, and that of 14kHz should be 0±3dB.

[Confirmation method]

- 1) Adjust the AUDIO OUT L [R] level to -10dBs with REC LEVEL control.
- 2) Record the signals (A) to (C) in sequence.
- 3) Playback the recorded section.
- 4) When the playback output level of 400Hz is specified as 0dB, that of 20Hz should be $0\pm 2dB$, that of 14kHz should be $0^{+2}_{3}dB$.

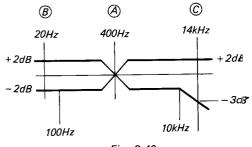


Fig. 8-40.

11. Overall Distortion Ratio Check

Mode	Self-recording and playback
Signal	400Hz, -10dBs: AUDIO IN L [R]
Measurement point	LINE OUT L [R]
Measurement equipment	Distortion meter
Specified value	Less than 0.35%

[Confirmation method]

- 1) Adjust the AUDIO OUT L [R] level to -10dBs with REC LEVEL control.
- 2) Record the signal.
- 3) Playback the recorded section.
- 4) The distortion ratio should be less than 0.35%.

12. Overall Noise Level Check

Mode	Self-recording and playback
Signal	Non-signal (Install shorting plugs to AUDIO IN both of L and R.)
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	Less than -89dBs*1

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) The noise level should be less than $-89 dBs^{*1}$
- *1 :The measured value when using IHF-A hearing sensitivity compensation filter.

8-4-2. AFM Audio System Adjustment

Unless otherwise specified, set the VTR switches and controles as shown below when making the adjustment.

INPUT SELECT switchLINE AUDIO MONITOR (PCM/MIX/STD) switchSTD

[Adjustment Order]

- 1) AFM carrier frequency adjustment.
- 2) AFM deviation adjustment.
- 3) E-E output level check
- 4) Overall level characteristics check
- 5) Overall frequency characteristics check
- 6) Overall distortion check
- 7) Overall noise level check

1. AFM Carrier Frequency Adjustment (AF-20/AU-22 Board)

Mode	REC (SP mode)
Signal	Non-signal
Measurement point	Pin ③ (REC AFM) of AF-20 board
Measurement equipment	Frequency counter and oscilloscope
Adjustment element	RV503 on AF-20 board
Specified value	1.500 ± 0.003MHz

[Adjustment method]

- 1) Adjust with RV503 so that it becomes 1.500 ± 0.003 MHz.
- 2) Check that the REC AFM level is approx. 90 mVp-p.

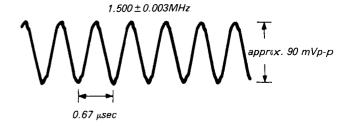


Fig. 8-41.

2. AFM Deviation Adjustment (AF-20/AU-22 Board)

Mode	Playback
Signal	Alignment tape: For operation confirmation (WR5-3CSP)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Adjustment element	RV501 on AF-20 board
Specified value	$-10\pm0.2\mathrm{dBs}$

[Adjustment method]

1) Adjust with RV501 so that the AUDIO OUT level becomes -10 ± 0.2 dBs.

3. E-E Output Level Check

The Checking element of Rch is shown in parentheses [].

Mode	E-E
Signal	400Hz, -10dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L [R]
Measurement equipment	Audio level meter
Specified value	-10 ± 2dBs

[Confirmation method]

1) Be sure the AUDIO OUT L [R] level is $-10 \pm 2 dBs$.

4. Overall Level Characteristics Check

Mode	Self-recording and playback (SP)
Signal	400Hz, -10dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Specified value	$-10\pm3\mathrm{dBs}.$

[Confirmation method]

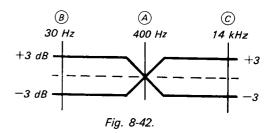
- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Be sure the AUDIO OUT level is -10 ± 3 dBs.

5. Overall Frequency Characteristics Check

Mode	Self-recording and playback (SP)
Signal	 A 400Hz, -20dBs B 30Hz, -20dBs C 14kHz, -20dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Specified value	When the 400Hz playback output level is specified as 0dB, the playback output levels of 30Hz and 14kHz become both 0±3dB.

[Confirmation method]

- 1) Record the signals of A to C in sequence.
- 2) Playback the recorded section.
- 3) Be sure that when the 400Hz playback output level is specified as 0dB, the playback output levels of 30Hz and 14kHz become both $0\pm3dB$.



6. Overall Distortion Check

Mode	Self-recording and playback
Signal	400Hz, -10dBs: AUDIO IN (Both of L and R)
Measurement point	AUDIO OUT L or R
Measurement equipment	Distortion meter
Specified value	Less than 0.5%*1

[Confirmation method]

- 1) Record the signal
- 2) Playback the recorded section.
- 3) Be sure the distortion is less than 0.5%*1.
- *1: The value when a distortion measuring filter (Fig. 8-43.) is used and that when the filter is not used is less than 1.0%.

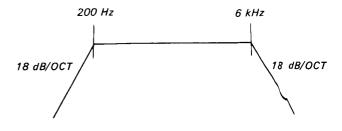


Fig. 8-43

7. Overall Noise Level Check

Mode	Self-recording and playback (SP)
Signal	Non-signal (Install shorting plugs to AUDIO IN both of L and R.)
Measurement point	AUDIO OUT L or R
Measurement equipment	Audio level meter
Specified value	Less than -62dBs*2

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Be sure the noise level is less than $-62dBs^{*2}$.
- *2: The value when an IHF-A listening sensitivity correction filter is used.

8-5. TUNER SYSTEM ADJUSTMENT

8-5-1. fH Adjustment (TU-83 board) (AEP model only)

Mode	E-E
Signal	None
Measurement point	Pin 6 of IC003
Measurement equipment	Frequency counter
Adjustment element	RV001
Specified value	15.625 ± 0.01kHz

[Connection]

Connect Pin 12 of IC003 to GND with a jumper wire.

[Adjustment method]

Adjust to 15.625 ± 0.01 kHz with RV001.



8-5-2. Stereo Separation Adjustment (TS-50 Board)

Mode	E-E
Signal	Stereo broadcasting signal by a RF signal generator L CHNone R CH400Hz 30% MOD •INPUTAERIAL IN
Measurement point	AUDIO OUT (L) terminal
Measurement equipment	Audio level meter
Adjustment element	RV101
Specified value	Minimum output level

[Adjustment method]

Minimize the 400Hz output level with RV101.

8-6. TIMER SYSTEM ADJUSTMENT (FT-13 Board)

Measurement point	Pin @ of IC002						
Measurement equipment	Frequency counter						
Adjustment element	CV001						
Specified value	$1048.58 \pm 0.01 \text{kHz}$						

[Connection]

- 1) Connect Pin 56 of IC002 and GND with a jumper wire.
- 2) Connect Pin 59 of IC002 and GND with a jumper wire.

[Adjustment method]

Adjust to 1048.58 ± 0.01 kHz with CV001.

8-7. SECAM-PAL CONVERSION SYSTEM ADJUSTMENT (West Germany model only)

- Make this adjustment aligning the PAL video system.
- · For this adjustment, use the equipment listed below.

[Equipment Required]

- (1) PAL Colour Monitor TV
- (2) Oscilloscope, Dual-trace, Bandwidth...more than 10MHz with delay mode
- (3) SECAM colour-bar generator
- (4) PAL vector scope
- (5) Frequency counter
- (6) Digital voltmeter

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope to CNJ002 (VIDEO IN) on the VI-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and line ID signals are flat at approximately 0.3, 0.7, and 0.3V, respectively. Fig. 8-45. shows video signals (colour bars) used in making the electrical adjustment.

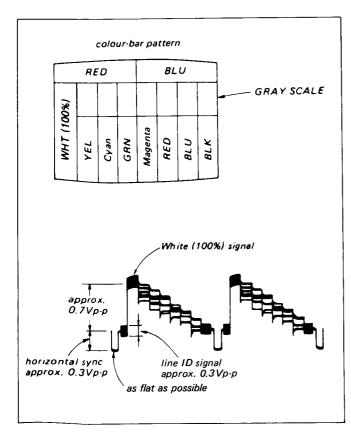


Fig. 8-45

8-7-1. fn VCO ADJUSTMENT (TC-3 Board)

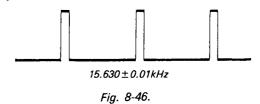
Mode	E-E
Signal	Non-signal
Measurement point	Pin 3 of IC002
Measurement equipment	Frequency counter
Adjustment element	RV001
Specified value	15.630 ± 0.01kHz

[Connection]

Connect between pin 1 of IC002 and GND with a capacitor of 0.1 μ F.

[Adjustment method]

1) Adjust with RV001 so that it becomes 15.630 ± 0.01 kHz.



8-7-2. V Blanking Pulse Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	CH1: Pin ① of CN002 CH2: Pin ⑨ of IC003
Measurement equipment	Oscilloscope
Adjustment element	RV002, RV003
Specified value	Leading edge adjustment (RV002)6±1H Trailing edge adjustment (RV003) +23±0.5H

[Adjustment method]

- 1) Adjust with RV003 so that the trailing edge of the V blanking pulse comes to the position of $+23\pm0.5H$ (+1472±32 μ sec) from the front edge of the vertical SYNC signal.
- 2) Adjust with RV002 so that the leading edge of the V blanking pulse comes to the position of $-6\pm1H$ (-384±64 μ sec) from the front edge of the vertical SYNC signal.

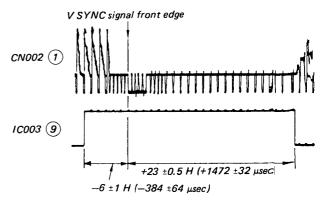


Fig. 8-47

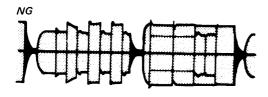
8-7-3. Bell Filter Adjustment (TC-3 Board)

Mode	E-E					
Signal	SECAM colour-bar					
Measurement point	TP001 (Connecting point of R053 and R054)					
Measurement equipment	Oscilloscope					
Adjustment element	LV002					
Specified value	The level variation of the chroma signal amplitude is $0 \pm 10\%$.					

Note: When performing (Adjustment method 1), be sure to use 1:1 probe as the signal level of TP001 is extremely small. In addition, when the adjustment is impossible because of the signal level is too small to read, perform (Adjustment method 2).

[Adjustment method 1]

1) Adjust LV002 until the waveform is flat.





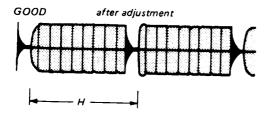


Fig. 8-48.

[Adjustment method 2]

- 1) Set the picture level of the monitor TV to maximum.
- 2) Adjust by turning LV002 so that the boarders of the respective colour-bars (especially red and blue) become vivid and stop LV002 at the position where the beat (red and magenta sections) becomes small.

8-7-4. FSC Adjustment (TC-3/VI-20 Board)

Mode	E-E						
Signal	SECAM colour-bar						
Measurement point	Pin ③ W005 on VI-20 board						
Measurement equipment	Frequency counter						
Adjustment element	CV001 on TC-3 board						
Specified value	4433618.75 ± 10Hz						

Note: Connect the frequency counter through a buffer with high impedance (approx. $10M\Omega$) and low capacity (less than 10 pF.)

[Adjustment method]

1) Adjust to 4433618.75 ± 10 Hz with CV001 on TC-3 board.

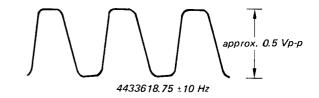


Fig. 8-49.

8-7-5. Demodulator Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ① of CN002
Measurement equipment	Oscilloscope
Adjustment element	LV001, RV005
Specified value	Minimum carrier leak (less than 20 mVp-p)

[Adjustment method]

 Adjust LV001 and RV005 alternately to minimize carrier leak.

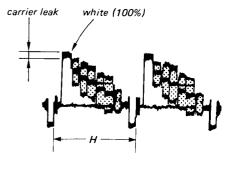


Fig. 8-50.

8-7-6. Delay Line Adjustment (TC-3, Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	VIDEO OUT terminal
Measurement equipment	PAL vector scope (75Ω) terminated)
Adjustment element	LV003, RV007
Specified value	 Be sure that RED and CYAN are within the (田). Be sure that other colours than the above are within (口).

[Adjustment method]

1) Adjust with LV003 and RV007 alternately so that the colour luminescent spots come into the specified frame.

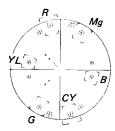


Fig. 8-51

8-7-7. Y/C Mix Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	Pin ① of CN002
Measurement equipment	Oscilloscope
Adjustment element	RV004
Specified value	When the SYNC level is specified as 100%, the burst level becomes 100±5%.

[Adjustment method]

1) Adjust with RV004 so that burst level becomes equivalent to the SYNC level.



Fig. 8-52

8-7-8. PAL/SECAM Distinction Adjustment (TC-3 Board)

Mode	E-E
Signal	SECAM colour-bar
Measurement point	1. Pin (4) of IC001 2. Pin (4) of CN002
Measurement equipment	Digital voltmeter
Adjustment element	RV006
Specified value	12.0±0.5 V dc

[Connection]

Connect an adjustable resistor of 2.2 $k\Omega$ in parallel with $1\,V002$

[Adjustment method]

- 1) Set the adjustable resistor of 2.2 $k\Omega$ to its maximum resistance value.
- 2) Confirm the DC voltage of pin (4) of IC001 is approx. 6.5 Vdc.
- 3) Make the resistance value of the adjustable resistor of 2.2 k Ω gradually small and stop it at the position when the DC voltage of pin 1 of IC001 becomes approx. 5 V dc after suddenly dropped.
- 4) Set RV006 to the position that it is turned fully to counterclockwise (()).

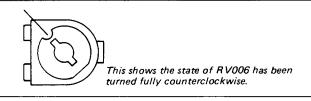
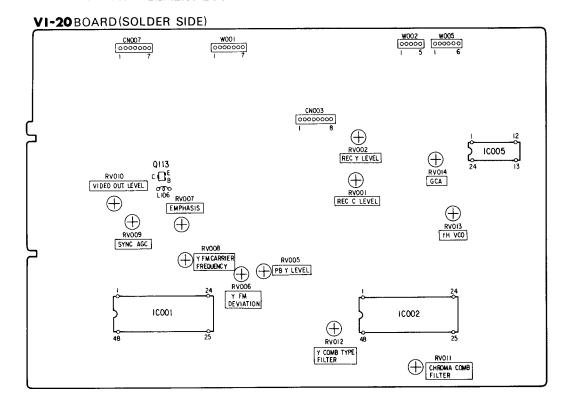
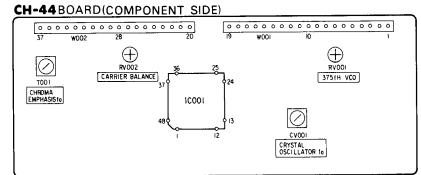


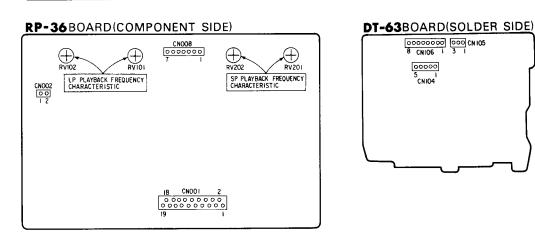
Fig. 8-53

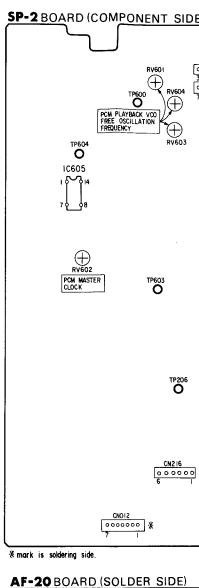
- 5) Connect a digital voltmeter to pin 4 of CN002 and confirm that the DC voltage is 0 Vdc.
- 6) Turn RV006 gradually clockwise () and stop it at the position when the DC voltage at pin 4 of CN002 becomes 12±0.5 Vdc after suddenly increased.

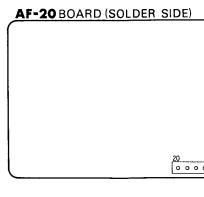
8-8. ADJUSTMENT ELEMENT LOCATION











8-8. ADJUSTMENT ELEMENT LOCATION

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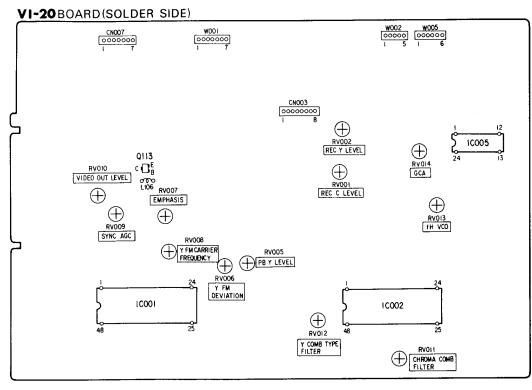
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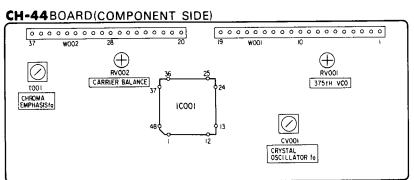
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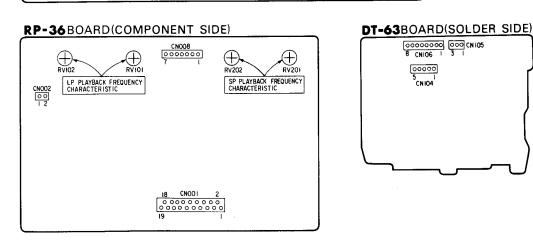
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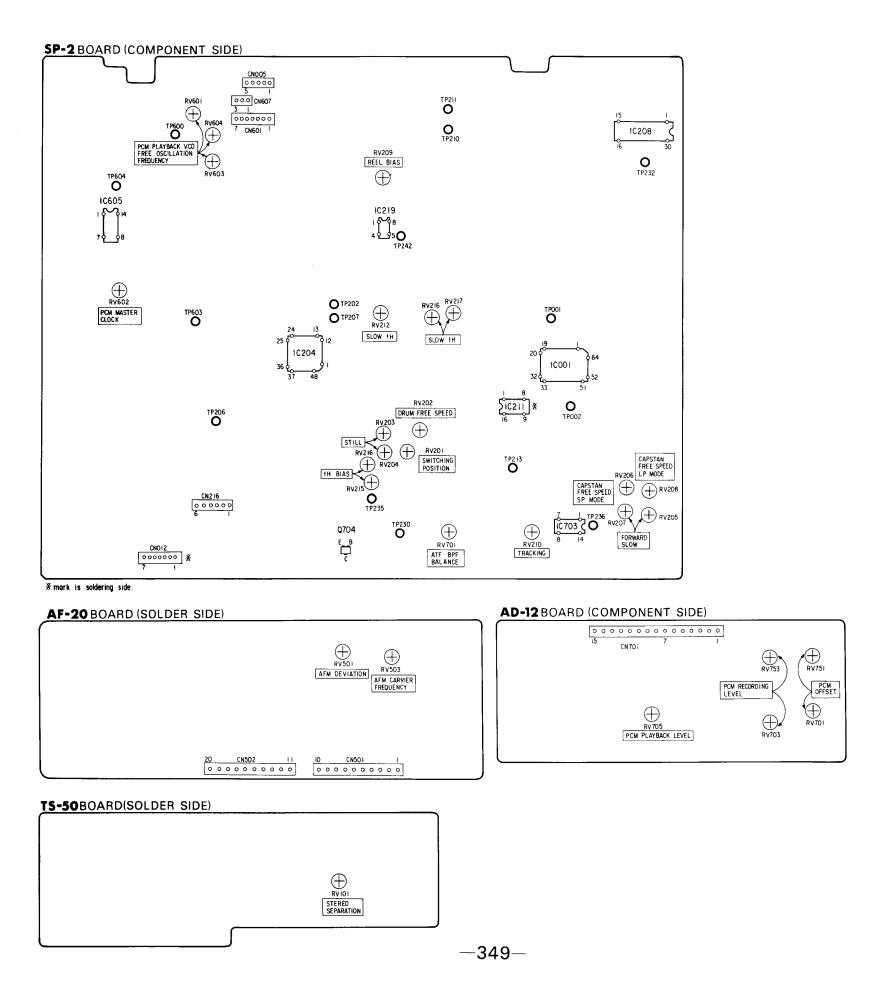
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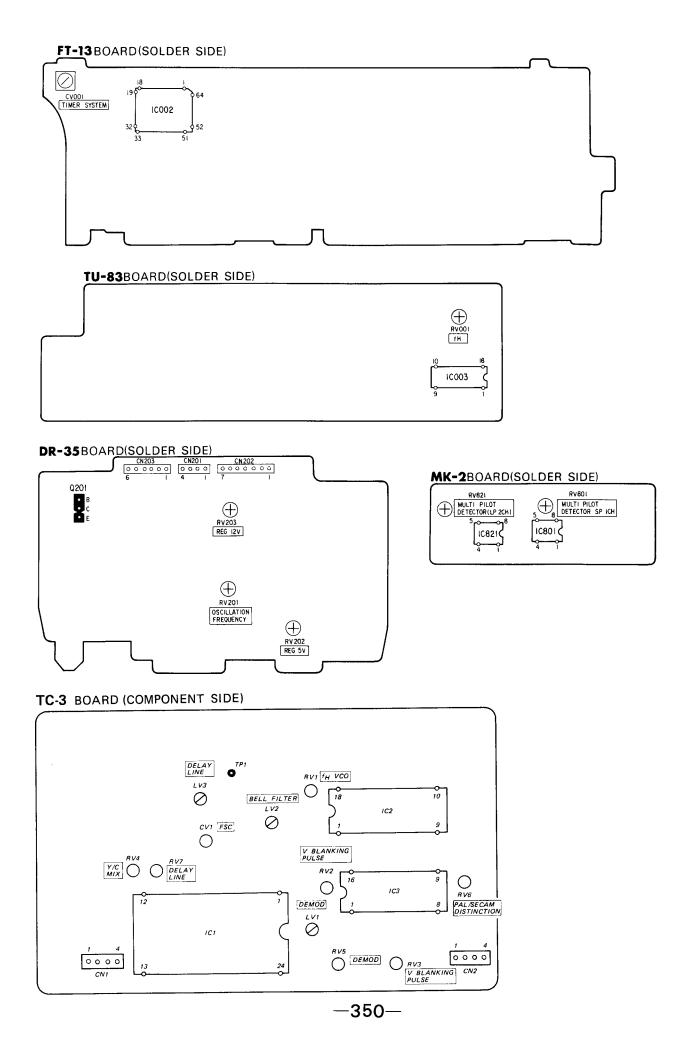
CN002











SERVICE MANUAL



SPECIFICATIONS

Remote control system Infrared control

Power requirements Dimensions 4.5 V dc, 3 R6 (size AA) batteries Approx. $105 \times 40 \times 160$ mm (w/h/d)

 $(4\frac{1}{10} \times 1\frac{1}{2} \times 6\frac{1}{4} \text{ in.})$

incl. projecting parts and controls

Weight

Approx. 220 g (8oz) without batteries



1. LOCATION AND FUNCTION OF CONTROLS

B-1

FUNCTION OF CONTROLS

1 Transmitter

2 Command mode selector (Page 356)

Select the command mode of the equipment you want to operate with the Commander.

To operate this VTR, set to the same position as that of the COMMAND MODE selector inside the upper compartment of the VTR.

3 OPEN/CLOSE button

4 Number buttons

Use for selecting programmes.

For 0 through 9, press corresponding single-digit numerals.

For 10 through 19, press "1-" for tens-digit and then ones-digit.

For 20 through 29, press "2-" and then ones-digit.

5 | and 11 | FRAME buttons (Page 24)

In the still picture mode, press **II** to reverse the picture by one frame, and **II** to advance the picture by one frame (frame-by-frame picture).

If the button is kept depressed, the picture moves continuously.

These buttons are also used to select the direction of playback.

Press **III** to reverse picture, and **III** for forward picture.

6 Variable speed playback buttons (Page 24)

During playback, press one of these buttons to select the desired playback speed.

► (still picture), x1/10, x1/5, x1, x2, SEARCH(for picture search)

7 INDEX button

8 GO TO ZERO button

9 AUTO PB (playback) button

Press to play back a tape automatically from the beginning of the tape after rewinding.

10 REC (record) buttons

To start recording, press these buttons simultane ously.

[11] Tape transport buttons

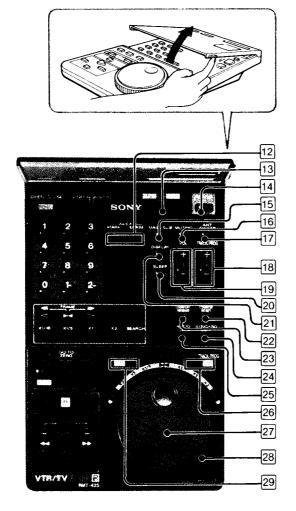
II PAUSE

► PLAY

REW

▶ FF

■ STOP



- B-2
- 12 INDEX MARK and ERASE buttons
- Remote control TV/VTR selector (Page 356)

 Normally set to VTR for operating the recorder. To operate certain Sony TVs (having a Imark), set to TV.
- 14 ON switch
- 15 MAIN/SUB button

Each pressing selects the MAIN, SUB or MAIN/SUB language of the bilingual programme or the played back biligual tape.

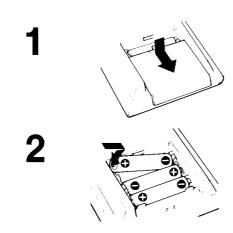
- 16 MUTING button
- 17 ANT TV/VTR button
- 18 TRACK/PROG (programme) buttons
- 19 VOL (volume) buttons
- 20 SLEEP button
- 21 DISPLAY button

Press to retain or extinguish the on-screen display of certain Sony TVs (having a R mark).

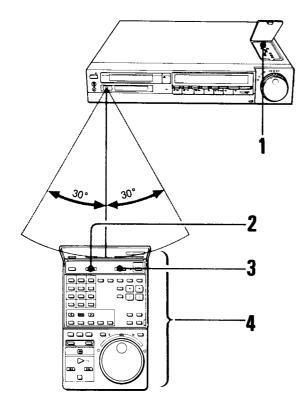
- 22 COUNTER RESET button
- 23 COUNTER/REMAIN button
- 24 SYNCHRO EDIT button
- 25 AUDIO DUB (dubbing) button
- Press when using the JOG dial for digital multi audio track selection, programme and index number selection.
- 27 JOG dial
- 28 SHUTTLE ring
- 29 JOG SHUTTLE function button and lamp (Page 23)
 Press this button when using the JOG dial and
 SHUTTLE ring for various speed playback.
- The buttons with the similar name or mark as the buttons on the VTR have the same function as tho
 so of the VTR.
- The buttons marked with an orange dot can be uset to operate certain Sony remote control TVs.

2. REMOTE COMMANDER SET-UP





B-4



B-3

Battery insertion

- 1 Open the lid.
- 2 Insert three R6(AA) batteries with correct polarity.
- 3 Slide and close the lid.

Battery life

In normal operation, batteries will last for about three months.

When the batteries are exhausted, the JOG dial and SHUTTLE ring on the Commander will not function, and then the indicator will not light when the buttons on the Commander are pressed.

If the Remote Commander is not to be used for a long period of time.

remove the batteries to avoid possible damage from battery leakage.



TO CONTROL THIS VTR

- 1 Set the COMMAND MODE selector in the upper compartment to VTR 1 or VTR 2.
- 2 Set the command mode selector on the Commander to the same position as that on the VTR.*
- 3 Set TV/VTR to VTR.
- 4 Press the required buttons.
- * Command mode should be selected correctly according to which equipment you use with this VTR simultaneously.

Notes on remote control operation

- There should be no obstacles between the Commander and the remote sensor.
- Operable range is limited.
 Distance: Approx. 7 meters from the remote sensor.
 Angle: Approx. ±30 degrees from the centre.
 The shorter the distance between the Commander and the equipment, the wider the angle within which the equipment can be controlled.

3. PRINTED WIRING BOARDS

Note:

 $\bullet \hspace{0.1cm} \circ\hspace{-0.1cm}-\hspace{0.1cm}$: indicates a lead wire mounted on the component side.

• • : indicates a lead wire mounted on the printed side.

 ⊗ : Through hole.

• Pattern from the side which enables seeing.

• Pattern of the rear side.

• B+ pattern from the side which enables seeing.

• Carbon pattern.

When indicating parts by reference number, please include the board name.

Caution:

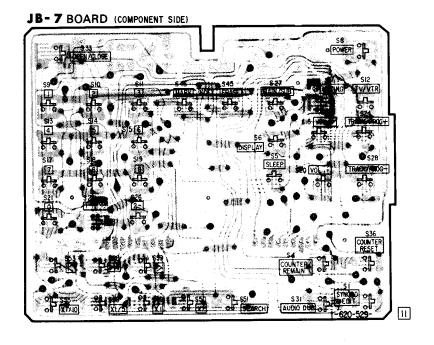
Pattern face side: Parts on the pattern face side seen from

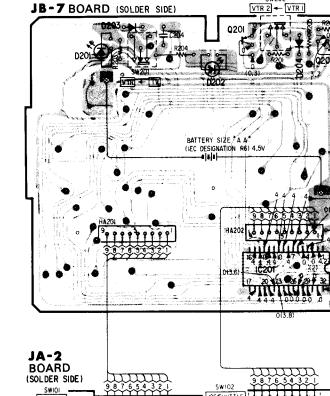
(Solder Side) the pattern face are indicated.

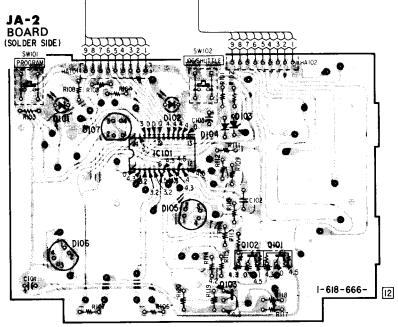
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

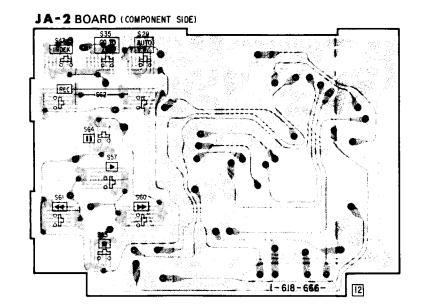
JA-2

JB-7











μPD7556G-506







2SC2673



155119



GP2509

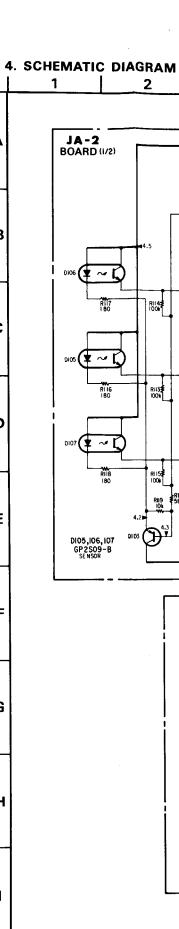


SLP144B





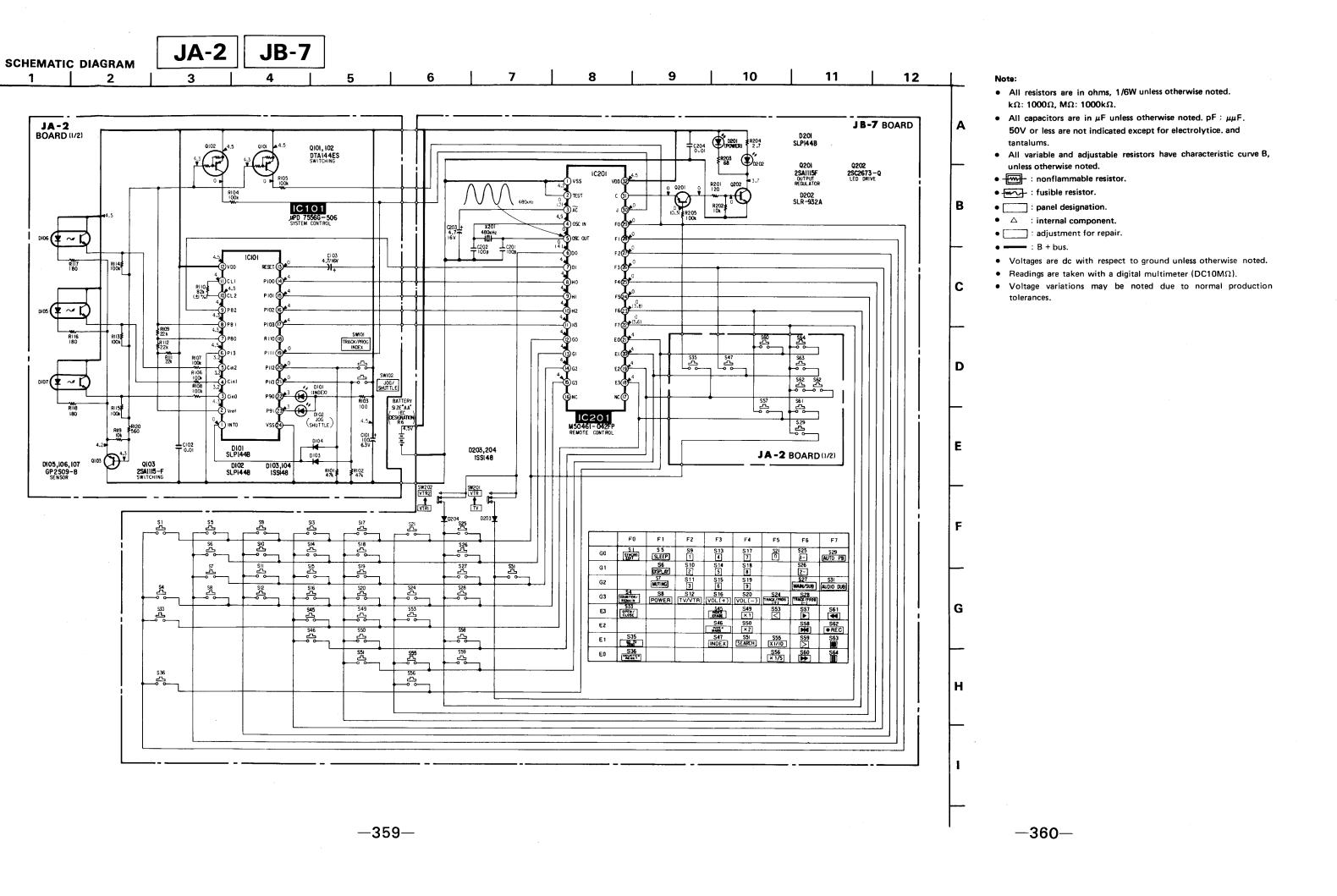
SLR932A



C

D

G

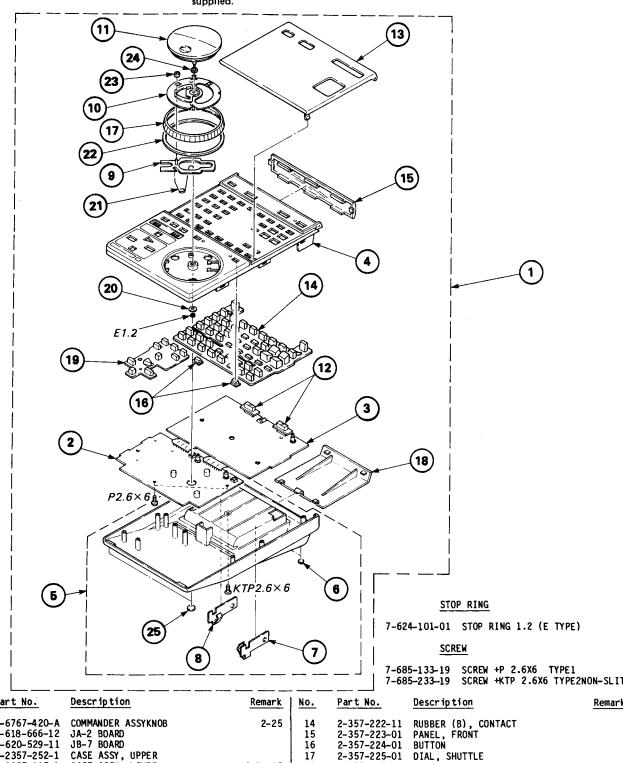


5. EXPLODED VIEW

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark A are critical for safety. Replace only with part number specified.



	l I	25)			7-62	4-101-01 STOP RING 1.2	(E TYPE)
	 		C. C.	7	İ	<u>screw</u>	
						5-133-19 SCREW +P 2.6X 5-233-19 SCREW +KTP 2.	
No.	Part No.	<u>Description</u>	Remark	No.	Part No.	Description	<u>Remark</u>
1	A-6767-420-A	COMMANDER ASSYKNOB	2-25	14	2-357-222-11	RUBBER (B), CONTACT	
2	*1-618-666-12	JA-2 BOARD		15	2-357-223-01	PANEL, FRONT	
3	*1-620-529-11	JB-7 BOARD		16	2-357-224-01	BUTTON	
4	X-2357-252-1	CASE ASSY, UPPER		17	2-357-225-01	DIAL, SHUTTLE	
5	X-2357-215 - 1	CASE ASSY, LOWER	6-8, 25	18	2-357-227-01	COVER, BATTERY	
6	4-374-469-01	FOOT, RUBBER		19	2-357-292-01	RUBBER, CONTACT	
7		TERMINAL (D), BATTERY		20	3-320-412-01	WASHER (1.4), SPECIAL	
8	4-350-925-00	TERMINAL (C), BATTERY		21	3-691-634-01	SPRING, TORSION	
9	X-3691-605-1			22	3-691-635-01	SPACER, SHUTTLE	
10	X-3691-615-1			23	3-691-648-01	ROLLER	
11	X-3691-672-1	DIAL (R) (N) ASSY, JOG		24	3-701-439-21	WASHER	
12	2-357-217-01	KNOB, SLIDE		25	2-270-305-00	FOOT, RUBBER	
13	2-357-221-61	LID, UPPER					

6. ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark 🐧 are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

• Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

• MF : μF, PF : μμF

COILS

• MMH : mH, UH : μH

			•	F	: nonflam	mable							
Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description	<u>n</u>			Remark
	*1-618-666-12	JA-2 BOARD						*1-620-529-11	JB-7 BOAR				
	CAP	ACITOR						2-357-218-01 2-357-219-01					
C101 C102	1-124-225-00 1-101-004-00	CERAMIC	100MF 0.01MF		20%	6.3V 50V			ACITOR				
C103	1-124-245-00	ELECT	4.7MF		20%	16V	C201	1-102-973-00	CERAMIC	100PF		10%	50V
	DIO	<u>DE</u>					C202	1-102-973-00	CERAMIC	100PF 4.7MF		10% 20%	50V 16V
D101 D102	8-719-901-44 8-719-901-44						C203 C204	1-124-245-00 1-101-004-00		0.01MF		20%	50V
D103	8-719-911-19	DIODE 1SS11						DIC	DE				
D104 D105	8-719-911-19 8-719-939-11		9				D201 D202	8-719-901-44 8-719-912-39					
D106 D107	8-719-939-11 8-719-939-11						D203 D204	8-719-911-19 8-719-911-19					
	<u>1C</u>							<u>1C</u>					
IC101	8-759-111-60	IC UPD7556G	-506				IC201	8-759-603-88	IC M50461-	042FP			
	TRA	NSISTOR						TRA	NSISTOR				
Q101 Q102 0103	8-729-900-65 8-729-900-65 8-729-611-53	TRANSISTOR	DTA144ES	;			Q201 Q202	8-729-204-83 8-729-967-32			GR		
Q103			LUNIIIU-	•				RES	SISTOR				
	RES	SISTOR					R201	1-249-406-11	CARBON	120	5%	1/6W	
R101	1-249-437-11 1-249-437-11		47K 47K	5% 5%	1/6W 1/6W		R202 R203	1-249-429-11 1-249-403-11		10K 68	5% 5%	1/6W 1/6W	
R102 R103	1-249-405-11		100	5%	1/6W		R204	1-249-452-11		2.7	5%	1/4W	
R104	1-249-441-11	CARBON	100K	5%	1/6W		R205	1-249-441-11	CARBON	100K	5%	1/6W	
R105	1-249-441-11		100K	5%	1/6W			SWI	тсн				
R106 R107	1-249-441-11 1-249-441-11		100K 100K	5% 5%	1/6W 1/6W		SW201	1-553-977-00	SWITCH, SI	. IDE			
R108	1-249-441-11	CARBON	100K	5%	1/6W			1-553-977-00					
R109 R110	1-249-433-11 1-215-467-00		22K 82K	5% 1%	1/6W 1/6W			CRY	(STAL				
					1/6W		X201	1-527-476-00	<u>- </u>	CEDAMIC	(48	UKH2)	
R111 R112	1-249-433-11 1-249-433-11		22K 22K	5% 5%	1/6W		, , , 201	1-52/-4/0-00	USCILLATO	K, CERMIIC	(40	OKIIZ/	
R113	1-249-441-11	CARBON	100K	5%	1/6W		*****	*****	*****	******	****	*****	******
R114	1-249-441-11		100K	5%	1/6W								
R115	1-249-441-11	CARBON	100K	5%	1/6W								
R116	1-247-813-00		180	5%	1/6W								
R117	1-247-813-00		180	5%	1/6W		ŀ						
R1 18 R1 19	1-247-813-00 1-249-429-11		180 10K	5% 5%	1/6W 1/6W								
R120	1-249-414-11		560	5%	1/6W								
	SW	<u>гтсн</u>											
SW101	1-553-856-00	SWITCH, KEY	BOARD										
	1-553-856-00												
*****	*****	******	*****	***	****	****	*						